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ORIGINAL ARTICLES

DIAGNOSIS OF TUBERCULODERMS.. 721
Chairman's Address, Henry E. Michelson, M.D., Minneapolis

SUBACUTE BACTERIAL ENDOCARDITIS 726
Albert C. Herring, M.D., and William M. Davis, M.D., New York

CURRENT PHARMACOLOGY 730
Chauncey D. Leake, Ph.D., Galveston, Texas

DERMATITIS FROM CONTACT WITH MOTHS..... 737
William R. Hill, M.D.; A. Daniel Rubenstein, M.D., and Joseph Kovacs Jr., M.D., Boston

CYSTS OF THE SACRAL ROOTS.... 740
I. M. Tarlov, M.D., New York

GENERAL PRACTITIONERS SESSION—THE CHRONIC INVALID..... 745
Edward L. Bortz, M.D., Cleveland

CLINICAL NOTES

PROLONGATION OF ACTION OF HEPARIN 747
Jefferson J. Vorzimer, M.D.; Leon N. Sussman, M.D., and Maxwell J. Marder, M.D., New York

COUNCIL REPORTS

Council on Pharmacy and Chemistry.. 749
New and Nonofficial Remedies.... 749
Council on Foods and Nutrition..... 749

EDITORIALS AND COMMENTS

Asepsis in Treatment of Burns..... 750
Portal Hypertension 750
Medical Science and the Administration of Justice..... 751
A New Health Bulletin..... 752
St. Luke 752

ORGANIZATION SECTION

Official Notes 753
Conference of Secretaries and Editors 753
South Central Regional Conference 754
Summary of Legislation..... 754
Washington Letter 760
Coming Medical Meetings 760

GOVERNMENT SERVICES

Navy 761
Public Health Service..... 761
Miscellaneous 761

REGULAR DEPARTMENTS

Medical News..... 762
Marriages 764
Deaths 765
Foreign Letters
London 768
Italy 768
Denmark 769
Madrid 770
Correspondence 771
Bureau of Investigation..... 772
Motion Pictures 773
Medicolegal Abstracts..... 773
Current Medical Literature..... 774
Book Notices 784
Queries and Minor Notes..... 788

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What are the latest methods in the treatment of leukorrhea? What dangers must be avoided in the management of the climacteric? What advances have been made in the therapy of functional menstrual disorders? What are the findings of the Jefferson Hospital plan for bedside care of infants by the parturient mother? Exactly what is the present status of continuous caudal and spinal anesthesia in obstetrics?

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CRITERIA FOR THE DIAGNOSIS OF CERTAIN TUBERCULODERMS

Chairman's Address

HENRY E. MICHELSON, M.D.
Minneapolis

All dermatologists are aware of the great progress that has been made in recent years in our knowledge of cutaneous tuberculosis. We have kept abreast of the advances with the knowledge of tuberculosis elsewhere and have followed the research in related fields. We have attempted to apply the new facts as each was established to what was known about cutaneous tuberculosis, but despite our considerable present knowledge, despite all the advances in the fields of allergy and immunology, we have been unable to find an explanation for the great variance in the morphologic aspects of the various tuberculoderms as we know them today.

The finding of the tubercle bacillus in lupus vulgaris lesions, both by culture and inoculation, disclosed that this cutaneous disease is in general tuberculous. This was a great advance, but it did not explain why in certain tuberculous patients there should develop such a slow, almost benign, form of cutaneous tuberculosis, even though its manifestation in the skin was a destructive and serious malady in itself. Other cutaneous diseases less destructlve than lupus vulgaris had been suspected of being closely related to lupus, but proof of their tuberculous causation was slow in coming. Gradually evidence was accumulated that some of these, for example acnitis, were also caused by the tubercle bacillus, and one by one a number of diverse cutaneous conditions were proved to be of tuberculous causation or, because of certain constant observations, were strongly suspected of being tuberculous. When this relationship, real or suspected, of tuberculosis was applied to a large series of poorly described cutaneous lesions, a nosologic terminology evolved which to this day makes the subject incredibly involved and complex.

In 1896 Darier propounded his theory of the tuberculids, and a new nomenclature was evolved. Lesions which were suspected of being tuberculous, but in which the tubercle bacillus could rarely if ever be found, were called "tuberculids," and the enthusiasm of some allowed a large number of cutaneous conditions to be included in this ill defined nosologic group.

As certain cutaneous lesions which either had been proved to be tuberculous or were still strongly suspected of being so became better known and were reported with greater regularity, an effort was made to classify them. Some students of the subject decided that certain types arose from inoculation in virgin soil, and they classified these types as external cutaneous tuberculosis, while other forms developed from endogenous infections and these they called internal types. Other classifications were based on the mode of spread and on the suspected manner of sowing of the bacilli in the skin. The way the patient who harbored various tuberculous lesions reacted to tuberculin provided explanation for the pathogenesis of certain types and hence another means of classification. The course and prognosis of the disease revealed the close relationship of some of these diverse conditions.

Regardless of which classification one accepts, it must be admitted that the behavior, the morphologic and histologic aspects and the prognosis of each well established form of cutaneous tuberculosis is peculiar to that form and that we must have as thorough an understanding of each particular form as present knowledge allows. Why do these various forms exist? To account for such dissimilarities it is necessary to presuppose different types of reaction between the bacilli and the tissues and to accept as an explanation the theory that there are individual peculiarities of the tissue in different persons.

A given pathogenic organism provokes, in the main, a fairly constant reaction in the tissues, as is so well demonstrated in histologic study of the reactions provoked by the Treponema pallidum. The tubercle bacillus also brings about a tissue response which is often easily recognizable. However, histologic analysis of a tuberculoderm, taking into consideration the epidermis, connective tissue, lymph vessels, blood vessels, glands and other parts, demonstrates that there is a certain uniformity in the individual tissue alternates throughout most of these lesions and that the pathologic changes do not account for the structure to any great extent. The quantitative value of the reaction seems more important than the qualitative, so that, by and large, the histologic observations of tuberculoderms do not explain either their presence or their form. The great morphologic variation must admit different types or degrees of reaction, but minute analysis invariably reveals the stamp of tuberculosis. The differences must rest, therefore, with the peculiarities of the tissues and all of the forces of tissue resistance, organism virulence, anatomic location and, of course, many unexplained phenomena.

To be able to diagnose, understand and treat the various forms of cutaneous tuberculosis as we know them today demands exhaustive study of the known facts about each of these various forms, and even then our knowledge must be somewhat adapted to the case at hand. Isolated well established observations are valuable, even though it is difficult to understand why certain things pertain when a case is viewed as representative of a type in a classification.

Director, Division of Dermatology, University of Minnesota.
Read before the Section on Dermatology and Syphilology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

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Therefore, I propose to review the established facts about a few of the tuberculoderms with the hope that we may attain a more uniform terminology and understanding when we are discussing these diseases.

LUPUS VULGARIS

Lupus vulgaris is the most important of the tuberculous conditions of the skin. Since it does not occur frequently in America, it is not so well known here as it is in Europe, where it is endemic in certain areas and is of vast social and economic importance. Lupus vulgaris is a term which is applied to a great many variations of a basic condition; hence a knowledge of the disease must include an understanding of its inception and an appreciation of its metamorphoses which result in such diverse morphologic forms and, unfortunately, in such an array of names. It must be constantly borne in mind that the different names do not imply a different disease, but merely varieties of one and the same process. In fact, it would be better if all forms were called lupus vulgaris, with the type which briefly describes the chief variation following in parentheses; for example: lupus vulgaris (tumidus type).

Lupus vulgaris always begins with the formation of a primary or elementary lesion. When the patient is first seen, the disease may be so altered that the beginning lesion cannot be found or pointed out by the patient; nevertheless there had been a primary lesion. It is called the lupus nodule, which is in reality a histologic designation; clinically it appears as a small group of lupus nodules, comprised microscopically of a primary lupus macule or papule, or even a small node. The primary lesion of lupus vulgaris must not be confused with a microscopic tubercle or with the primary lesion of tuberculosis as seen in the lung. It is merely the initial reaction to the tubercle bacillus in the skin of a person who, for various inexplicable reasons, is a fit subject for this peculiar form of cutaneous tuberculosis known as lupus vulgaris. This individual susceptibility rests on many factors about which we may speculate, but the reason that in a person infected with tubercle bacilli there develops a particular type of cutaneous tuberculosis simply is not known. The general laws that govern the reaction of the human organism to tuberculosis must pertain in cutaneous tuberculosis, but it is more difficult to apply them and to observe the various stages and changes in the integument. The state of allergy and the degree of immunity are closely related to the morphologic manifestations in cutaneous tuberculosis, but the relationship is not so well understood as it is in the lungs. The person in whom lupus vulgaris develops evidently has a high degree of allergy but low immunity and resistance. There is a decided defense reaction against invasion of the bacilli, but an inability to overcome the invaders or even to keep the disease from advancing. For this reason, lupus vulgaris is in most instances a chronic slowly progressive disease, beginning as a small lupus nodule, growing peripherally and forming an ever enlarging plaque, the character of which changes when the inflammation brings about noticeable alterations in the epidermis or cutis. If the epidermis becomes hyperkeratotic, the lesion assumes a verrucous character, or if lymphatic stasis is pronounced in the corium the lesion becomes tumefied, and so on, but the basic process is the same, a tuberculous inflammation beginning and extending in the cutis and having certain characteristics which are unique for lupus vulgaris

Lupus vulgaris is distinctly a class disease. It is rarely seen in the stratum of society which enjoys ample food, hygienic surroundings and protection from close contact with an infective source, such as neglected and undetected tuberculosis in the milieu of a person. Geographic locations and climates also play an important role. Lupus vulgaris occurs endemically in regions which have a moist cool climate with a relatively small number of hours of sunlight per year. It is an extremely rare disease in the tropics.

Lupus vulgaris frequently begins in childhood, especially in endemic areas, although this is not so often true of the sporadic cases seen in America. This predilection may be due to certain anatomic properties of the skin, mucous membranes and lymphatic apparatus of childhood, and one may readily appreciate the greater opportunity for infection of a child in a household in which there is tuberculosis.

That lupus vulgaris is due to tuberculosis seems to be well established, even though it is difficult to demonstrate the bacillus in lupous tissue. Numerous positive results of animal inoculations, the nature of the pathologic changes within the lesion, the patient's positive reactions to tuberculin and the identification of the organism by many investigators all seem to leave no doubt of the tuberculous nature of this disease.

The disease, as previously stated, begins as a small collection of miliary tuberculous nodules situated in the papillary portion of the cutis, or even deeper. They first appear as a small circumscribed flat red or brown area of infiltrate which cannot be obliterated by glass pressure (diascopy), but later appear paler and often have the apple jelly color which is so traditionally quoted as being characteristic of lupus vulgaris. The gross nodule is soft and easily permits penetration with a pointed probe. Growth is slow but steady, and the small node soon becomes a round or oval area which may be either smooth or covered with a fine scale. The plane or scaly lesion is characteristic for lupus vulgaris in childhood. As growth progresses, the lesions usually become more papular and elevated and the outline changes; in some a disk-like plaque results, and in others the peripheral growth is more rapid and, with some degree of healing in the center of the lesion, becomes annular or serpiginous. If growth is rapid and the process intense, the lesion assumes the appearance of an elevated tumor, sometimes becoming fungoid. If the process involves chiefly the papillary layer and the epidermis is affected, the lesion becomes verrucous or papillomatous, but if the patient is a candidate for severe disease, ulceration with secretion and crust formation quickly ensues. Lupus vulgaris lesions always have sharp boundaries, and the surrounding tissue may appear normal, or a few sentinel lupus nodules may stand out at the periphery in the normal tissue.

The further growth and development of an initial area of lupus vulgaris may proceed in a variety of ways. The plaque may attain a certain size and then remain stationary in size and type. If growth continues, it is very slow, and gradually scar formation takes place, beginning in the center of the plaque but almost never being complete, islands of characteristic lupus tissue being discernible in the scar. Another possibility is the appearance of new plaques in different parts of the body. But the commoner course of events is that the plaque extends in area and changes in character. Long-standing plaques either ulcerate and become crusted or become covered with a thick dry scale. Face lesions are prone to become tumidified because of stasis, while plaques on the body become verrucous. As in

every tuberculous process, so also does lupus have the tendency to form fibrous scar. The scar of a plane plaque is often soft and smooth, but the scarring which follows ulcerating and destructive lupus vulgaris lesions may lead to unsightly and handicapping deformity. About the nose, mouth and eyes, and also in the hands, the scars may cause actual loss of function and great debility.

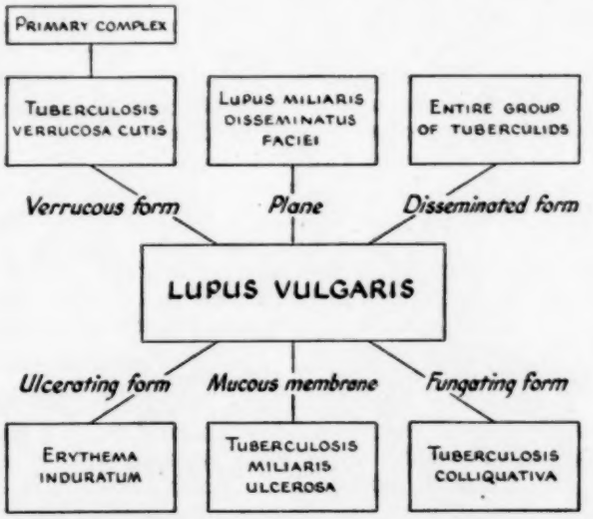
Without further description, it may readily be realized that lupus vulgaris may be a rather benign torpid process, involving only a small area, or it may be very destructive and widely disseminated. It is a disease of great variations and extremes, but one common characteristic for all types is the chronicity. Rate of growth of the lesions may be rather rapid, but usually they take months or even years to spread. There is no way of anticipating what may take place. In some patients the disease may seem to be controlled rather well when suddenly new lesions appear or new areas become involved. There is some seasonal incidence or recrudescence, late winter being the time when this tendency is most often noticed.

Lupus vulgaris may appear on any part of the body, but the face is certainly an area of predilection. Strangely the scalp is rarely involved, and if so only as an extension of facial occurrence. Why the face is more often invaded than any other part of the body is not known, but the frequent localization about the nose has led some to state that such involvement is secondary to a diseased nasal mucous membrane. Often the nasal mucosa, as well as the nasal openings and the structure of the nose, take part in the process, which may go on to destruction of the soft parts, with resulting unsightly deformity. It is the common involvement of the nose and face which makes lupus vulgaris such a hideous and terrifying disease, and ostracizes the patient in his social and economic life.

For each part of the body, lupus has certain more or less characteristic forms, but they are not of diagnostic importance. It must also be mentioned that the disease may occur with a number of disseminated lesions appearing simultaneously. This type is seen in childhood and may follow some acute infection, such as measles or scarlet fever. A variant of this disseminated type is the much more dangerous widely dispersed hemorrhagic postexanthematous eruption, which is more accurately a form of acute miliary tuberculosis than of lupus vulgaris.

The histologic picture of lupus vulgaris is almost as complex as its clinical manifestations. The predominating picture is that of a tuberculous granuloma, but many different combinations of the component parts of such an inflammation may be seen. The presence of groups of epithelioid tubercles, with giant cells set off from each other by lymphocytic infiltrates, is, in brief, what is seen. Caseation as seen in other organs is rare, but certain degrees of necrosis in the center of the tubercle is often noted. The inflammation begins high in the cutis and may spread laterally or even downward, but lupus vulgaris is usually rather superficial. The granuloma has sharp boundaries, appearing at times to have a capsule, but this is not the case. Blood vessels may be found in the granuloma, and remnants of such vessels make one believe that the inflammation followed the blood vessel network. Connective tissues and appendages are destroyed, and the epidermis may undergo a variety of changes, ranging from hypertrophy with acanthosis to complete destruction with ulceration. Remnants of epithelial cells may often be seen in the infiltrate, and this fact has been used as an explanation for the ease with which these cells may take on abnormal growth and cause epitheliomas to develop. The tendency to sclerosis is often developed in lupus tissue; thus an effort at healing is initiated. It must be emphasized that a great many different pictures may be seen microscopically from excised lupous tissue and that there is no pathognomonic observation. Tuberculosis may be observed microscopically in the lesion, but definite microscopic diagnosis of lupus vulgaris is most difficult.

From this brief clinical and histologic description, it may readily be realized that lupus vulgaris is a protean disease, but if one recalls the various forms and transitions this disease may undergo, one may much better understand all forms of cutaneous tuberculosis. In fact, there is hardly a known form of tuberculoderm that has not a prototype in lupus vulgaris. The scheme presented herein illustrates how lupus vulgaris may be



Schematic representation of relationship of lupus vulgaris and other types of cutaneous tuberculosis.

taken as the common form to which all types of cutaneous tuberculosis may be compared.

The criteria for the diagnosis of lupus vulgaris are:

1. Insidious onset
2. Primary lesion: the lupus nodule
3. Peripheral local extension
4. Gradual metamorphosis, assuming a type
5. Very slow growth
6. Topography—face, commonest location
7. Microscopic analysis: varied but tuberculoid structure present
8. Tuberculin reaction usually positive

One should search for internal tuberculosis especially in the lungs and glands; tubercle bacilli should be searched for by all known methods.

LUPUS MILIARIS DISSEMINATUS

Lupus miliaris disseminatus faciei occupies a unique position among the tuberculoderms. It possesses characteristics of both plane lupus vulgaris and of the facial type of tuberculid which is often called acnitis. It is a relatively rare disease, but, because of its similarity to the now popular rosacea-like tuberculid and to the miliary form of cutaneous sarcoid, it is worthy of considerable attention.

The eruption occurs almost exclusively on the face and even there shows a predilection for the eyelids, the upper lip, the chin and immediately adjacent areas. It rarely involves the forehead, ears or scalp. It has been seen on the neck. The rest of the body, even the elbow region and the fingers or the toes which are often the seat of tuberculids, is entirely free.

Onset is rather sudden but insidious, the lesions appearing painlessly and either individually or many at the same time, their number gradually increasing until the total number that are going to constitute the eruption have made their appearance. This may take up to six weeks. The total having been attained, no new lesions form. The body apparently is able to limit and control the outbreak to a comparatively few lesions; about fifty is the maximum. The individual lesion is small, but there is some variation in size, from that of a grain of wheat to a small pea. They remain discrete and do not coalesce to make a plaque, are symmetric, have the characteristic color of lupus nodules, are soft and are not covered with a crust. Occasionally the center appears to be pustular but on incision does not drain. The border is so sharp that the lesion can be destroyed with a microcautery. The lesions remain in situ for a varying length of time, from three to six months or even longer, and then gradually disappear, often leaving a variola-like scar. I have not seen recurrence in a single patient with lupus miliaris. The tuberculin reaction may or may not be positive. While much importance has been attached to a negative reaction, it has no bearing on the diagnosis.

The observation of a tubercle located just below the epidermis and having central caseous necrosis has been described so often that one expects always to find just that on microscopic examination, but that has not been my experience. I have seen considerable variation, sometimes the picture just described and at other times an epithelioid tubercle or a sharply circumscribed mass of tuberculoid structure with or without necrosis. The location may or may not be perifollicular.

The condition resembles lupus vulgaris because the indivdual lesion resembles a lupus nodule, has the same color and is similar under glass pressure and because of the histologic observations, which show it to be tuberculoid or even entirely like tuberculosis elsewhere in the body. It simulates the tuberculids because of its sudden exanthem-like appearance, its spontaneous disappearance with characteristic scarring and the great difficulty in demonstrating tubercle bacilli.

The criteria for diagnosis are:

1. Sudden appearance
2. Particular areas of the face only involved
3. Discrete lupus nodule-like lesion
4. Microscopic section
5. Indolent course
6. Self-limited
7. Tuberculin reaction

Lupus miliaris disseminatus faciei might well be an abortive form of plane lupus vulgaris. The individual lesion cannot be differentiated from a lupus vulgaris nodule. However, the fact that the lesions remain discrete, without forming a plaque, and disappear spontaneously makes the condition different from ordinary lupus vulgaris. Treatment as a rule is not necessary. Vitamin D was administered to 2 patients with the condition without any apparent effect.

TUBERCULOSIS VERRUCOSA CUTIS

This form of cutaneous tuberculosis also is rare, and, although often considered in differential diagnoses, it occurs with such infrequency that its characteristics are not as well known as one would think. Just as I consider lupus miliaris closely related to plane lupus vulgaris, so do I consider tuberculosis verrucosa cutis as a mild benign form of verrucous lupus vulgaris. The condition has been observed often enough in pathologists, veterinarians and butchers to be looked on as an occupational disease and, because the infection is external, as a form of inoculation tuberculosis.

The initial lesion, its evolution and course, the lack of lupus nodules and the location readily differentiate the early process from verrucous lupus vulgaris, while in the well developed large plaque the differences are not so apparent.

The condition occurs almost exclusively on the hands, occasionally on the feet, but almost never elsewhere on the body. The particular regions are the periungual areas and over the knuckles and the thenar eminences. The initial lesion may resemble a torpid phlegmon, and, when seen as such, the evolution cannot be predicted. Most commonly it begins as a deep seated rather ill defined bluish red node. Scales form early, and the lesion enlarges and tends to exhibit zones, the central portion becoming soft and even pustular, encircled by a warty ring and outside of this a halo of dusky red inflammation which fades off into the surrounding skin. The degree of verrucosity varies a great deal, as do the other elements, depending on the size, rate of growth and location of the lesion.

Patients in whom tuberculosis verrucosa cutis develops have had tuberculosis previously and are therefore in a state of allergy; otherwise a positive reaction to inoculation would in all likelihood bring about a different type of lesion—a primary complex; since the verrucous type of tuberculosis of the skin is so benign, the patients also have a high degree of resistance. The disease occurs oftenest in adult men and rarely in children.

The lesion progresses in a centrifugal manner, which results in an annular or, at times, serpiginous lesion. Having attained a certain size, the lesion becomes stationary, and further changes occur only within the lesion. The center sinks, some scarring takes place and activity is noted at the borders and in a few islands within the lesion. The warty elevations vary somewhat in height and breadth, and there often is some crusting because of coagulated secretion. At times the lesion becomes converted into a thin scar, with activity confined to the periphery. Ascending lymphangitis and tuberculous adenitis of the adjacent nodes are possible complications, and, just as lymph stasis may occur in certain cases of lupus vulgaris, it may be noticed in patients with tuberculosis verrucosa cutis, the part becoming boggy and enlarged. The condition is chronic, and although it becomes stationary there is an effort on the part of the body to heal the lesion by scar formation; it does not heal spontaneously and may remain active for a long period; on the other hand, the lesions respond well to properly directed treatment. Roentgen therapy or some form of coagulative destruction are the treatments most often recommended.

The histologic observations are at times confusing because of the presence of acute or chronic inflammatory elements superimposed about areas of tuberculoid structure. Hyperkeratosis and a tuberculous type of tuberculoid structure must be present to permit one to diagnose the condition microscopically. At times the tuberculous infiltrate predominates, with few other elements present, while in other sections it is only with difficulty that one finds small areas of tuberculoid structure. Occasionally small areas of tuberculoid structure are entirely encircled by the hyperkeratotic epidermis. The degree of hyperkeratosis may be great, even forming horny cysts, but without some degree of hyperkeratosis a diagnosis of tuberculosis verrucosa cutis is not tenable. Caseous necrosis is absent.

The condition is relatively benign, but the danger of extension to the lymphatics must be kept in mind.

The criteria for diagnosis are:

1. Occurrence principally on the hands
2. Slow development after history of certain types of injury
3. Consideration of the occupation of the patient (physician, veterinarian, butcher)
4. Verrucous lesion
5. Microscopic section (difficult diagnosis)
6. Demonstrate tubercle bacilli by smear or animal inoculation
7. Tuberculin reaction

One should search for tuberculosis.

THE TUBERCULIDS

The existence of any of the tuberculids is based on an assumption that at some moment in the life of a person infected with tuberculosis, the bacilli became labile and reached the skin, which having become sensitized, reacted to the presence of the bacilli to a pronounced degree, thereby producing a lesion. The lesion is dependent on the state of allergy, the number and virulence of the organisms and possibly the depth and size of the blood vessels where the bacilli are lodged at the time the "id" reaction takes place. It is also assumed, and with considerable good evidence, that the bacilli are killed by the "id" reaction, so that the lesion is the result of the energetic tissue response and not due to continued growth of the bacilli. Hence tuberculids are individual lesions and do not extend contiguously; they tend to heal in a rather short time, and because of the intensity of the reaction, with resultant necrosis, they usually heal with a scar.

In order to comprehend the production of tuberculids, one must understand the immunobiologic aspects of tuberculosis as accepted today. All tuberculids are probably hematoembolic processes. The resulting morphologic lesion depends on many factors, but the anatomic location, both minute and regional, must play an important role in the appearance of the clinical lesion. I shall not review the well known facts concerning tissue reactions to the tubercle bacillus, for here we are concerned only with the diagnosis of the resulting cutaneous lesions. It is desirable, however, to view every tuberculid as a new inoculation, for the lesion to some degree approximates the second inoculation type of lesion seen in experimental tuberculosis. It is difficult to understand why tuberculids develop in a patient who has a subclinical or clinical type of systemic tuberculosis. What controls the time of onset? Why does the sowing of bacilli cease? Why are certain areas of the body so commonly involved while other parts are almost never the seat of a lesion? Is the bacillemia constantly present, or is it transitory? There are so many perplexing problems connected with the pathogenesis of the tuberculid that we can only accept what little evidence has been advanced and wait for further developments.

The tuberculids comprise a group of clinical conditions and therefore have had many different names applied to each type. It would simplify our understanding of the tuberculids if we would realize that they are all papular lesions, varying in size and in secondary changes. Since there is a surprising monomorphism in individual cases, mixtures of types, for example, lichen scrofulosorum (squamous papular tuberculid) and acnitis (necrotic papular tuberculid), are rarely seen; the conditions which predispose to a certain variety must be fairly well fixed even if we do not know what they are.

The microscopic appearance of a tuberculid is dependent on two factors: (1) the specific tissue response and (2) the secondary changes. Initially, there must be the reaction against the tubercle bacillus that one expects in an allergic subject (he must be allergic if one adheres to the theory of hematogenous sowing from an established internal focus), for infection with tubercle bacilli confers on a subject a property which the organism did not possess prior to the infection. This property, which is called allergy, increases the reactivity to subsequent infection or inoculation. The degree of allergy varies. It may be weak or strong or may even disappear, but of all species subject to infection with tubercle bacilli, I know of no species in which the reaction is so intense or so lasting as it is in human beings. Thus, although the tissue response will vary, it will follow the general pattern of tissue response against tuberculosis and will eventually result in tuberculoid structure. In some tuberculids, such as the scaling lichenoid type, that is all that will be found, the secondary change being only a mild scaling, but in the larger more intense legions, like the necrotic papular tuberculids, the central portion of the reaction in the lesion is so great that necrosis results, producing a core about which tuberculoid structure is found. Hence, in the necrotic tuberculids, the two elements—one specific and the other secondary—are to looked for. The microscopic diagnosis of tuberculids is difficult. Many diverse morphologic combinations may be found, but tuberculoid structure, preferably of the kind seen in tuberculosis, must be present in order for one to venture the diagnosis of tuberculid.

Just as the microscopic picture varies, so does the clinical appearance of the different kinds of tuberculids. It is not necessary to review the appearance of particular types of tuberculids, but it should be emphasized that on the pathogenesis rest certain common properties. As to be expected, the onset is rather sudden and may be exanthem-like. The lesions are usually symmetric because of the blood-borne invader. The lesions being small and superficial, they provoke practically no subjective symptoms. Because of their evolution, the lesions go through a cycle, the more torpid ones remaining papular, the more intense necrosing early. Scars often result, but some tuberculids may disappear without leaving a trace. The necrotic papular tuberculids often recur. It would therefore seem logical that the body conditions which permit the development of necrotic papular tuberculids must be similar to those which permit erythema induratum to develop. In both conditions there is often recurrence over a period of many years. Tuberculids which do not necrose apparently rarely recur, for example, lichen scrofulosorum (scaling papular tuberculid).

In summary, tuberculids occur because the infected body reacts against fresh implantations in an intense but effective manner, and the resulting lesions are more or less self limited as to size and duration. The type produced depends on many factors which one can hardly conjecture about, let alone prove.

The criteria for the diagnosis of the tuberculids may be applied to all types. They are:

1. Rather sudden onset
2. Symmetry
3. Fairly rapid evolution
4. Self-limited course
5. Areas of predilection for each type
6. Tuberculin reaction usually positive
7. Microscopic evidence of tuberculosis

A search for tuberculosis should be made.

SUMMARY

It should constantly be borne in mind that tuberculosis of the skin is the result of an integumentary reaction against infection with a specific organism and that the facts which have been accumulated about tuberculosis in general may be applied in a somewhat restricted manner to tuberculosis of the skin.

Because the morphologic entities which are now looked on as tuberculoderms were discovered and described individually and were included in the general category of tuberculosis long after their initial recognition, it is easily understood why they have been treated as entities rather than members of a group. This has resulted in a vast descriptive literature, in redundant minute differentiations and in a virtual neglect of the most important fact that tuberculosis of the skin is only a form of tuberculosis; just as tuberculosis in other organs produces a variety of clinical types, so does it also in the skin.

One must constantly keep in mind the hard gleaned facts about tuberculous infection. One must constantly contemplate the changing picture of the tissue response, and one must appreciate that the reaction of the human organism against the tubercle bacillus is discontinuous, so that the degree of resistance, and possibly immunity and allergy, is constantly changing. If a subject is going to be the victim of cutaneous tuberculosis, the particular type of lesion probably is dependent on the precise moment of the phase in the battle between the invader and the host when inception of the lesion takes place. Since the resulting lesions are diverse, both as to type and course, it seems best to continue to apply designating names rather than to use an over-all term, but one must not forget that one is dealing with tuberculosis.

PENICILLIN TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS

Report of Eighteen Consecutive Cases

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Prior to the use of chemotherapeutic agents, subacute bacterial endocarditis was rarely if ever cured. With the increasing use of sulfonamide compounds in the treatment of this condition, series of cases were reported in which apparent cures were achieved in approximately 5 per cent of patients treated.[1] Recent experience with penicillin in a number of well substantiated series [2] indicates that the percentage of patients cured is substantially higher than among patients treated with sulfonamide compounds. It is the purpose of this communication to show the results of penicillin therapy in 18 consecutive cases of subacute bacterial endocarditis.

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Because of lack of space this article is abbreviated in THE JOURNAL by the omission of 3 of the 5 reports of cases originally included.

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CLINICAL DATA

Selection of Cases.—In the two year period from Jan. 1, 1944 to Dec. 31, 1945, 18 patients with subacute bacterial endocarditis were admitted to St. Luke's Hospital. The diagnosis was established in each instance by the clinical history, physical findings and repeated positive blood cultures.

Table 1 shows the clinical data in the series of patients.

Age and Sex.—Ten patients in this series were males and 8 patients were females. Their ages varied from 6 to 77 years. The average age of patients in this series was 39.2 years.

Primary Cardiac Disease.—Three patients had congenital cardiac defects. Eleven patients had underlying rheumatic heart disease. Underlying arteriosclerotic heart disease was present in 2 cases. In 2 cases the etiology of the underlying cardiac lesion was not determined.

Infecting Organism.—In 16 cases the organism isolated was the Streptococcus viridans. In 1 case an undifferentiated streptococcus was revealed. In 1 case a pleomorphic streptococcus was found.

Duration of Infection.—The apparent duration of infection in each case varied between three weeks and seven months. It is of interest to note that failures and deaths occurred in cases in which infection had existed longer than six weeks. Yet in 2 cases an infection of at least five months' duration was arrested.

Penicillin Sensitivity.—The recovered organism was tested in 17 cases for its sensitivity to penicillin in various dilutions. The method used was a serial dilution technic used at the Brooklyn Jewish Hospital. The original sensitivities varied between 0.008 and 0.15 unit per cubic centimeter. The response to treatment could not be predicted from the original sensitivity of the organism. Failures occurred in those cases in which the penicillin sensitivity was more than 0.03 unit per cubic centimeter. In 3 patients who relapsed there was a gradual increase in the resistance of the organism.

Penicillin Blood Levels.—During the course of therapy, penicillin serum levels were determined in 15 patients, and these were used to gage the adequacy of penicillin dosage. It was our aim to maintain the serum concentration well above the sensitivity of the isolated organism, preferably five to ten times the level required to inhibit the organism's growth in vitro.

Method of Administration, Dosage and Duration of Penicillin Therapy.—The usual method of administration of penicillin was by continuous intravenous infusion. The daily dosage was dissolved in 1,000 cc. of isotonic sodium chloride solution and the drip regulated to deliver this volume in twenty-four hours. By refinement of intravenous technic, new short 23 gage needles being used, the veins of the hand and forearm were utilized. The arm was splinted below the elbow with individually fitted padded plaster half casts. Such an arrangement is comfortable and allows movement of elbow and shoulder. In certain cases the development of congestive heart failure necessitated the use of 5 per cent dextrose solution in distilled water as the vehicle. The most annoying obstacle to the use of intravenous administration has been frequent local thrombophlebitis at the site of venipuncture.

This was partially reduced by changing arms every three to four days. In some cases the concomitant

TABLE 1.—*Clinical Data in 18 Cases of Subacute Bacterial Endocarditis*

Case No.	Sex	Age	Primary Cardiac Disease	Penicillin Sensitivity of Organism, Units/Cc.*	Approximate Duration of Infection	Dates of Treatment	Daily Penicillin Dosage	Route	Days	Total Penicillin Dosage	Heparin	Results of Treatment	Present Status and Follow-Up
1	M	28	C.H.D.**	0.047	5 months	3/29/44	200,000	CIV†	14	2,800,000	No	Relapsed	Well for 20 months with negative blood culture
						6/12/44	250,000	CIV	28	7,000,000	Yes	Arrested	
				0.125	2 months	6/ 3/46	5,000,000	CIV	37	185,000,000	Yes	Arrested	Well; 5 months
2	M	54	R.H.D.‡	.....	5 months	4/20/44	200,000	CIV	14	2,800,000	No	Relapsed	Died 7/21/44; autopsy showed active infection
3	M	65	Uncertain	0.06	3 months	6/ 7/44	200,000	CIV	16	3,400,000	Yes		Died July 1945, "stroke"; apparently well for 11 months; no autopsy
						6/25/44	300,000	CIV	6	1,800,000	Yes	Arrested	
						7/27/44	240,000-320,000	IIM§	9	2,240,000	No		
									31	7,440,000			
4	F	50	R.H.D.	0.125	3 weeks	6/21/44	300,000-500,000	CIV	10	3,600,000	Yes	Arrested	Well; 30 months
						7/ 4/44	500,000	CIV	20	9,900,000	Yes		
									30	13,500,000			
5	M	13	C.H.D.	0.008	Uncertain	8/14/44	200,000-300,000	CIV	14	3,800,000	Yes	Arrested	Well; 26 months
6	F	18	R.H.D.	0.008	5 months	9/ 3/44	200,000-300,000	CIV	28	6,000,000	Yes	Arrested	Lived 15½ months; died 1/5/46; no autopsy
7	M	34	R.H.D.	0.008	2 months	9/20/44	200,000-300,000	CIV	28	7,500,000	Yes	Arrested	Died 11/15/44, the day of discharge from nospital; no autopsy
8	M	58	A.S.H.D.¶	0.015	4 months	10/25/44	160,000	IIM	11	1,830,000	No	Died	Died 11/15/44 during treatment; autopsy showed active healing infection
9	F	36	R.H.D.	0.06	3 months	11/13/44	300,000-400,000	CIV	28	9,700,000	Yes	Relapsed	Well; mild cardiac insufficiency; 22 months
						1/28/45	400,000	CIM‖	28	11,200,000	No	Arrested	
									56	20,900,000			
10	F	28	R.H.D.	0.015	6 weeks	11/ 9/44	200,000-300,000	CIV	28	6,900,000	Yes	Arrested	Well; 12 months
11	F	77	A.S.H.D.	0.06	2 months	12/22/44	200,000	IIM	5	1,000,000	No	Relapsed	Died 2/23/45; autopsy revealed active infection
						12/27/44	200,000-300,000	CIV	23	5,500,000	Yes		
									28	6,500,000			
12	F	56	R.H.D.	0.06	3 weeks	3/ 4/45	400,000	CIM	36	14,400,000	No	Arrested	Well; moderate cardiac insufficiency; 20 mo.
13	F	24	R.H.D.	0.03	3 weeks	5/12/45	300,000-500,000	CIM	28	9,800,000	No	Arrested	Well; 18 months
14	M	52	Uncertain	0.03	6 weeks	7/ 4/45	120,000	IIM	28	3,240,000	No	Arrested	Well; 14 months
						7/31/45	400,000-3,000,000	CIM	57	70,200,000	No		
						10/17/45	240,000	IIM	17	4,080,000			
									101	77,520,000			
15	F	6	C.H.D.	0.06	7 months	9/25/45	100,000-200,000	CIM	28	4,900,000	No	Relapsed	Living, but ill; infection still present
						11/ 8/45	400,000	CIM	42	16,800,000	No	Relapsed	
						12/20/45	800,000	CIM	31	24,800,000	No	Relapsed	
						1/20/46	2,000,000	CIM	26	52,000,000	No	Relapsed	
						3/ 4/46	2,000,000	CIM	49	98,000,000	No	Relapsed	
						5/15/46	5,000,000	CIV	58	290,000,000	No	Relapsed	
						8/30/46	Streptomycin, 2.0 Gm. daily		21	Total: 42 Gm.			
						11/ 1/46	Streptomycin, 2.0 Gm. daily		14	Total: 28 Gm.			
							plus 5,000,000	CIV	20	100,000,000	No	Relapsed	
									254	586,000,000			
16	M	28	R.H.D.	0.06	2 weeks	11/ 3/45	400,000-800,000	CIM	13	8,000,000	No	Arrested	Well; 13 months
						11/16/45	400,000-600,000	CIV	28	16,600,000	No		
						12/24/45	400,000	CIV	8	3,200,000	No		
									49	27,800,000			
17	F	35	R.H.D.	0.015	2 months	10/17/45	160,000	IIM	6	1,120,000	No	Arrested	Well; 13 months
						11/16/45	400,000-800,000	CIM	35	19,400,000	No		
									41	20,520,000			
18	M	47	Uncertain	Approx. 0.015	6 weeks	12/ 8/45	400,000	CIV	35				
							240,000	IIM	7	15,520,000	No	Relapsed	Died 12/24/46; obvious active infection; no autopsy
						1/30/46	500,000	CIV	7				
							1,000,000	CIV	14	58,000,000	Yes	Relapsed	
							2,000,000	CIV	21				
						3/28/46	4,000,000	CIV	52	208,000,000	Yes	Relapsed	
						5/28/46	5,000,000	CIV	6				
							10,000,000	CIV	42	452,000,000	Yes	Relapsed	
						7/20/46	Streptomycin, 2.0 Gm. daily		21	Total: 42 Gm.		Relapsed	
						8/18/46	Streptomycin, 2.0 Gm. daily		14	Total: 28 Gm.			
							plus 10,000,000	CIV	10				
							20,000,000	CIV	14	380,000,000	Yes	Relapsed	
									208	1,114,020,000			

* The organism in case 7 was an undifferentiated streptococcus and in case 18 was a pleomorphic streptococcus. In the other 16 cases it was Streptococcus viridans.

** Congenital heart disease.

† Continuous intravenous infusion.

‡ Rheumatic heart disease

§ Interrupted intramuscular injection.

¶ Arteriosclerotic heart disease.

‖ Continuous intramuscular infusion.

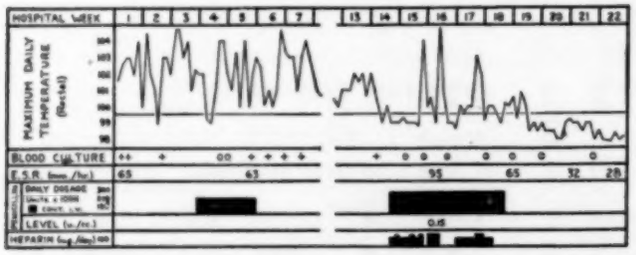
use of heparin appeared to decrease local thrombophlebitis.

Continuous intramuscular drip was used for the entire period of treatment of 5 patients with excellent results. It was also used for variable periods in 4 other patients. The daily volume of sodium chloride solution with intramuscular drip was 500 to 1,000 cc. In some cases there were considerable local reactions at the needle site. This difficulty was more frequent and severe with large doses of penicillin.

Interrupted intramuscular injections of penicillin were used for short periods of time in patients in whom the continuous intravenous or intramuscular drip had to be discontinued temporarily.

A four week course of penicillin was given in the majority of cases. The daily dosage of penicillin varied from 200,000 to 500,000 units. With patients who relapsed much larger doses were given in longer courses. The total amount of penicillin administered to any single patient ranged between 2,800,000 and 1,114,020,000 units.

Heparin.—Heparin was used in 9 patients. In 4 patients it was employed throughout a successful course of penicillin. In 3 patients heparin was employed during only part of a course. In case 9 it was used during a first unsuccessful course of treatment and omitted



This illustrates failure with one short course of treatment followed by successful arrest of infection with a four week course of penicillin. This patient was again treated successfully twenty months later for a second episode of subacute bacterial endocarditis which was apparently a reinfection. (Case 1).

during a second successful course. In case 18, heparin was administered during several of the patient's multiple courses of penicillin.

The daily dose of heparin varied between 50 and 250 mg. It was incorporated in the penicillin infusion. The coagulation time was determined at least once daily by the Lee-White method and was kept between thirty and sixty seconds by varying the dosage. In case 18 heparin was also used in small doses for local anticoagulant effect in an effort to avert local thrombophlebitis at the site of intravenous administration of large doses of penicillin. No hemorrhagic phenomena attributable to heparin were noted. Three patients had febrile and systemic reactions of a sensitivity type which seemed to be due to heparin.

SUMMARIES OF CASES

Two representative case summaries from the series are presented.

Case 1 (the chart).—W. H., a man aged 27 years with a known heart murmur since the age of 7, enjoyed excellent health until eight months prior to admission, when he had left-sided pleurisy for two weeks. Three months later he left work because of increasing fatigue, followed by anorexia, general malaise, loss of weight, night sweats and fever.

On admission, March 9, 1944, he was acutely ill, with pallor and anemia, clubbed fingers, palpable spleen and temperature of 101.4 F. The heart percussed in the right thorax with the apex impulse in the fifth right interspace 1 cm. beyond the midclavicular line. There was a harsh systolic thrill and murmur over the base of the heart just to the left of the sternum.

Angiographic studies with intravenous iodopyracet injection showed a dextroplaced heart, an interauricular septal defect, pronounced dilatation of the pulmonary arteries, but no transposition of the cardiac chambers.

The patient ran a spiking temperature to as high as 105 F., and three blood cultures were positive for S. viridans. March 28, continuous intravenous infusion of 200,000 units of penicillin daily was started. On the second day of therapy a pulmonary infarct occurred. Temperature continued to be elevated during treatment. Penicillin could be administered for only two weeks because limited supplies were available at that time. Blood cultures taken the last day of treatment and subsequent culture grew S. viridans.

During the next six weeks the patient continued to be acutely ill with fever, a second pulmonary infarct and cardiac enlargement. The sensitivity to penicillin of the organism recovered from blood culture was found to be 0.047 unit per cubic centimeter. June 12 penicillin was resumed in a daily dosage of 250,000 units by continuous infusion. Heparin was also given in dosage of 100 to 150 mg. daily. Penicillin was continued for twenty-eight days, and the patient received a course of 7,000,000 units.

The patient's temperature was normal from the second day of treatment on, except for several spikes to 104 and 105 F. Difficulty was experienced in obtaining the same brand of heparin for this patient, and the fever may have been caused by the use of the product of several different manufacturers. Blood cultures taken during treatment and all subsequent cultures were negative. The patient had an uneventful convalescence.

The patient returned to full time work and was in good health for the next twenty months. He attended clinic regularly. In May 1946, he entered the clinic with a two month history of weight loss and fatigue. Blood culture was found to be positive May 28.

On admission June 1 the patient appeared moderately well. The cardiac findings were unchanged since the previous admission. The spleen tip was palpable.

The patient had a low grade fever and blood cultures grew S. viridans, the penicillin sensitivity of which was 0.125 unit per cubic centimeter. June 3 the continuous intravenous administration of 5,000,000 units of penicillin with 50 mg. of heparin was started and continued for thirty-seven days. Blood cultures taken June 17 was positive after ten days of incubation. Other blood cultures were negative and the patient's course was uneventful. He received a total of 185,000,000 units of penicillin.

Since discharge the patient has remained in good health. Blood cultures have been negative. He has been followed five months.

Case 18.—M. S., a groceryman aged 47, had several previous admissions to this hospital for herniorrhaphy, hydrocelectomy and left nephrectomy for chronic hydronephrosis. There was no history of cardiac disease, although a harsh apical systolic murmur was noted on the last admission in 1941. Six weeks before admission the patient experienced pain in the left hip and shoulders accompanied by mild anorexia, loss of weight and malaise.

Examination on admission, Nov. 26, 1945, revealed a thin, chronically ill man with marked scoliotic deformity of the thoracic portion of the spine. The heart was enlarged and there was a harsh loud apical systolic murmur, widely transmitted.

The patient ran a swinging temperature, and five blood cultures were positive for a pleomorphic streptococcus. The organism failed to grow well on solid mediums, and sensitivity studies indicated that it was one half as sensitive to penicillin as the control strain (0.008 unit per cubic centimeter).

On December 8, the continuous intravenous infusion of 400,000 units of penicillin daily was started; it was continued for five weeks. An additional week of interrupted intramuscular doses of penicillin was given. During this week, blood cultures were again positive. Penicillin was stopped. After one week the patient's temperature began to spike daily, and four addi-

tional blood cultures were positive. A total of 15,520,000 units of penicillin had been given and blood levels were between 0.05 and 0.75 unit per cubic centimeter.

On January 30, the daily administration of 500,000 units of penicillin was resumed by continuous intravenous drip. After one week this was increased to 1,000,000 units daily with blood level of 0.75 unit per cubic centimeter. At this time local thrombophlebitis developed in the arm veins, and temporarily a continuous intramuscular drip was used. Strong local muscular reaction appeared. The continuous intravenous drip was resumed and heparin was administered in daily 50 mg. doses. Penicillin level attained was 1 unit per cubic centimeter. March 11, penicillin was stopped; a total of 58,000,000 units had been given during the second six week course.

At this point the patient's general condition was good and the situation appeared favorable. However, blood cultures again grew the same pleomorphic streptococcus and sensitivity studies indicated a several fold increase in the organism's resistance to penicillin.

On March 28, penicillin was resumed; 4,000,000 units of penicillin and 100 mg. of heparin were given daily by continuous intravenous infusion. Heparin was then omitted, and because of dental infection all teeth were extracted. Penicillin varied between 0.8 and 3.3 units per cubic centimeter. It was continued for fifty-two days, to a total of 208,000,000 units.

Blood cultures again became positive, accompanied by fever. Dr. Leo Loewe of the Brooklyn Jewish Hospital saw the patient in consultation and because of the increasing penicillin resistance of the organism suggested much higher dosage.

On May 28, penicillin was started in dosage of 5,000,000 units daily with 50 mg. of heparin daily by continuous drip. Blood cultures continued to be positive, and on June 4 penicillin was increased to 10,000,000 units daily; it was continued for forty-two days. Penicillin levels ranged between 1.5 and 12 units per cubic centimeter, well above the concomitant organism sensitivities to penicillin of 0.06 and 0.15 unit per cubic centimeter. A total of 452,500,000 units of penicillin was given during this fourth course of therapy.

Dr. Loewe reported the organism to be the type of streptococcus "s.b.e.," which he has described and found extremely resistant to penicillin. At his suggestion streptomycin was obtained and started on July 20 in daily dosage of 2 Gm. by divided intramuscular injection. With completion of the course positive blood cultures again indicated relapse. The total streptomycin received was 42 Gm.

On August 18, a further two week course of streptomycin was started. The streptomycin was given intramuscularly in daily 2 Gm. dosage. Simultaneously, a continuous intravenous infusion of 10,000,000 units of penicillin was given daily. After ten days the penicillin dosage was increased to 20,000,000 units daily and maintained for two weeks. A total dosage of 28 Gm. of streptomycin and 380,000,000 units of penicillin had been given during this fifth course. Penicillin levels varied between 5 and 43 units per cubic centimeter.

The patient's general condition was good and he was allowed to be up and about. However, continuing positive blood cultures and fever indicated persistent infection. Further strenuous therapy was decided against. The patient was discharged home.

Six weeks later the patient was readmitted to the hospital with a history of weakness, anorexia, chills, fever and pains in shoulder and neck. He appeared chronically ill and emaciated. He showed fever, and blood cultures were positive. Sulfadiazine was administered in the usual dosage. In a stormy one month course the patient went downhill rapidly; he died Dec. 24, 1946. No autopsy was permitted.

RESULT OF TREATMENT

The results of treatment in these cases may be summarized as follows: Ten patients are alive and well; 7 patients have died, and 1 patient is in relapse. An analysis of the patients who died follows:

Patient 2 received only one short course of penicillin; no further penicillin could be obtained, and he died in relapse. Patient 9 died in the course of treatment with intramuscular doses of penicillin which were inadequate because of the scarcity of the drug.

Three patients died in the immediate post-therapeutic period. Patient 12 died in relapse after a four week course of therapy failed to arrest the infection. Patient 7 died the night of discharge from the hospital after overexertion and excessive drinking. No evidence of active infection was present at discharge. Patient 18 died after receiving five courses of penicillin in massive dosage and two courses of streptomycin.

Two patients died about one year after completion of treatment. Patient 3 was well for eleven months after treatment and died of a cerebrovascular accident. Patient 6 had severe rheumatic aortic and mitral valvular disease and died in congestive heart failure fifteen and one-half months after treatment. After the arrest of her infection, she had several episodes of rheumatic fever with persistent chronic congestive heart failure. Blood cultures were consistently negative.

Apparently penicillin arrested the infection in 3 patients who died. One of these patients died of an apparently unrelated cerebrovascular accident. Two patients had severely damaged hearts with marked aortic regurgitation.

The results of treatment are tabulated in table 2.

TABLE 2.—*Results of Treatment*

Total cases	18
Infection arrested	13
Relapse—infection uncontrolled	4
Death during treatment	1
Alive and well (one year or more)	10
Death after apparent termination of infection	3
Total deaths	7

We were able to control the infection in approximately 75 per cent of the cases in our series. The remaining 25 per cent were treatment failures who died during the course of therapy or patients whose infecting organism proved resistant to penicillin. Among the 75 per cent in whom the infection was controlled there were 3 subsequent deaths. In our series 10 patients, or 55 per cent of the original series, are alive and well after a year or more.

Case 1 is of particular interest. This patient recovered from a first illness and was well for twenty months. Then for the second time typical manifestations of subacute bacterial endocarditis developed. Streptococcus viridans was recovered from the blood. He was treated successfully and has been well for five months.

COMMENT

A comparison of the results of treatment in our series with those of other clinics indicates that they are similar.[2] Approximately 25 per cent treatment failures are reported by most observers. This figure appears difficult to reduce. It is questionable whether the fatal embolic phenomena that occur can be averted. They appear to be no less frequent in heparin-treated patients. The cardiac complications that occur during treatment, such as congestive heart failures and arrhythmias, can be minimized if promptly recognized and treated. The hope for improving the number of cures appears to be in the recognition of those cases the organism in which has an initial high resistance to penicillin and which will require massive doses of penicillin. The recent report of Loewe[3] concerning the isolation of a penicillin-resistant streptococcus which he has called

3. Loewe, L.; Plummer, N.; Niven, C. F., Jr., and Sherman, J. M.: Streptococcus s.b.e. in Subacute Bacterial Endocarditis, J. A. M. A. **130**: 257 (Feb. 2) 1946.

"streptococcus s.b.e." is of interest. The fact that during treatment the recovered organism frequently shows increasing resistance to penicillin indicates the need for an initial dosage of penicillin which is sufficiently high to assure effectiveness. In our series failures occurred in those patients whose organisms showed a penicillin sensitivity of more than 0.03 unit per cubic centimeter. Several patients responded satisfactorily although their organisms showed penicillin sensitivities greater than this figure.

During the therapeutic course of penicillin it is difficult to judge the effectiveness of treatment. During the administration of penicillin, negative blood cultures and other signs of clinical improvement are usual. Persisting fever and elevated sedimentation rate may not be unfavorable signs, since both can be caused by many factors other than persistent infection. The only method of judging the effectiveness of treatment is a period of observation at the end of a course of penicillin. In cases in which relapse occurred, signs of relapse and positive blood cultures appeared within the initial two week period following cessation of therapy.

Most patients will apparently respond to a daily dosage of 500,000 units of penicillin. However, because the in vitro sensitivity of the organism does not give an accurate measure of the in vivo bactericidal level, much larger doses are recommended. We believe all patients should receive at least 2,000,000 units of penicillin daily in a six week course. If the penicillin sensitivity is greater than 0.06 unit per cubic centimeter, daily doses of 5,000,000 units or more are indicated at the onset.

We cannot recommend the routine use of combined penicillin and heparin treatment. In this small series the results were inconclusive and failed to show any definite benefit from the use of heparin. In view of the difficulties of administration and the possible dangers of heparin, it has been used recently for two purposes. It has been used in cases of extremely resistant disease as an additional, possibly beneficial measure when previous courses of penicillin have failed. It has also been used in small doses for its local anticoagulant effect to prevent thrombophlebitis when large doses of penicillin were being given intravenously.

The method of administration of penicillin is much discussed. From the reported series, it is apparent that the different methods used give much the same degree of success. Our familiarity with the continuous intravenous technic leads us to favor it. The continuous intramuscular drip appears to be equally effective in our hands.

SUMMARY

A series of 18 cases of subacute bacterial endocarditis treated with penicillin is reported. In 13 of the patients the infection was arrested. Ten of the patients are alive and have been well over a period of at least a year. The results of treatment and failures are discussed.

A patient who has recovered satisfactorily from two separate episodes of subacute bacterial endocarditis separated by twenty months of apparent good health is reported.

The use of 2,000,000 units of penicillin daily in all cases is recommended. In patients with more resistant organisms doses of 5,000,000 units or more of penicillin should be used.

The administration of penicillin by continuous intravenous or intramuscular drip is recommended.

The combined use of penicillin and heparin offers no definite benefits and is not recommended.

CURRENT PHARMACOLOGY

General Principles in Practical Clinical Application

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In acquiring more precise pharmacologic knowledge about chemicals used in medicine, the alert physician is able more satisfactorily to apply such information for the benefit of his patients, whether in the diagnosis, prevention or treatment of disease. In spite of the great numbers of useful new drugs being introduced into medicine for various purposes, the most important development of current pharmacology is theoretical, in connection with the establishment of general principles. An acquaintance with general principles of pharmacology, especially as developed by Clark,[1] is being recognized as increasingly helpful in the practical clinical use of drugs.

It may seem peculiar to the hard-headed clinician not to offer any specific information in this discussion about any particular drug. He may ask what value it is to him in trying to help his patients to have some general ideas about time-concentration relationships, since what he wants to know is how much of which drug to use when. The answer is that knowledge of the general principles of pharmacology aids in the choice and most efficient use of chemicals appropriate for the particular clinical situation with which he may be concerned. It is of practical help in judging the use of drugs to understand the factors involved in the intensity of drug action, to know something of the general principles of dose-effect and time-concentration relationships and to realize something of the mechanisms of drug action. While new terminology in technical matters may be strange and confusing at first, the direct intellectual effort put into its comprehension will aid greatly in its effective use. The intelligent grasp of the general principles of current pharmacology and of the basic concepts involved will promote more intelligent, more effective and more economical use of drugs, with greater satisfaction for patient and physician.

Thousands of chemicals are available for clinical use. New drugs are continually being developed and exploited. While crude drugs, comprising uncontrolled chemical mixtures from natural sources, are diminishing in number and importance, new synthetic chemicals for medical use are increasing in quantity and value. Frequently the clinical use of drugs is not satisfactorily established on the basis of demonstrable biologic action. Physicians are often fooled over claims made for drugs. An understanding of a few simple general principles regarding the appraisal of drugs will help the average physician to judge for himself the value of data offered him by the well coached detail men who try to persuade him to use new drugs in which there may be large commercial interest.

It is difficult to attempt to derive general principles regarding drug action from the vast amount of detailed knowledge and opinion which has accumulated for individual drugs. Nevertheless such generalities may be highly significant for the intelligent physician

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1. Clark, A. J.: The Mode of Action of Drugs on Cells, Baltimore, Williams & Wilkins Company, 1933; General Pharmacology, in Heffter, A.; Heubner, W., and Shüller, J.: Handbuch der experimentellen Pharmakologie, Berlin, Julius Springer, 1937, vol. 4.

in evaluating drug action and in determining the indications for appropriate drug use. Such principles may offer the discriminating physician reliable guides for judgment and choice of regimen in clinical situations in which chemicals may help.

THE DEVELOPMENT OF PHARMACOLOGY

Pharmacology is the study of the action of chemicals on living things. The action may be beneficial or harmful, and the living things may be plant or animal. Pharmacology is thus a broad scientific discipline. It is chiefly applied in medicine. However, other applications are rapidly developing in agriculture, industrial hygiene, law and even in sociology. Pharmacology is closely related to other scientific disciplines, such as biochemistry, biophysics, physiology, microbiology, pathology and pharmaceutic chemistry.[2]

It is necessary to differentiate the study of the action of drugs from the proposition of the practical use of drugs in medicine. The process of acquiring verifiable and agreed-on knowledge of the action of chemicals on living things is a scientific matter. The application of this knowledge to the benefit of a particular sick patient is an artistic venture, calling for the exercise of judgment, discrimination and choice. In modern medical teamwork science and art complement each other. When chemicals are concerned, the pharmacologists of the team represent science and are responsible for acquiring verifiable knowledge about the action of chemicals on living things, while the physicians on the team represent the art, and are responsible for the wise and judicious application of the knowledge available to accomplish benefit to the patient. To succeed, physicians must possess and appreciate the knowledge and understand the principles of its application.

Pharmacology began anciently with observations of the action of crude plant, animal and mineral materials when tried for food. Primitive and isolated peoples all over the world developed an elaborate folk lore regarding the application of such observations to disease. Most of these applications were sensible. Thus the Modoc Indians in Northern California observed that the eating of the bark of a certain tree produces purgation. They then rationally used this bark when constipated. The ancient Egyptians formulated their slowly acquired drug lore into recipe books, which recommended the use of various preparations in various clinical conditions.[3] These recipes were copied and expanded by the Greeks and Romans, frequently combined into complex prescriptions by Arabian and medieval physicians, and finally were subjected to increasingly careful analysis beginning with the rise of modern chemistry.

Modern pharamacology began in the eighteenth century with the establishment of chemistry on a quantitative basis. Crude drug mixtures could then be analyzed for their active principles. Serturner (1783-1841) in Germany isolated a sleep-producing crystalline material from opium which he called morphine, with reference to the Graeco-Roman god of sleep. This was followed by the isolation of many other alkaloids and, later, of other types of active principles, including those found in vitamins, hormones, antibiotics and even in biologic preparations for immunology.

Not satisfied with active chemical agents found in nature, pharmocologists began to try to improve on them, in order to increase the desired effect and reduce toxicity. The success with which this may be accomplished was first clearly shown in the many synthetic local anesthetics which are such an improvement over the naturally occurring cocaine. It is necessary first to identify the active principle chemically. Often this is an arduous job. But it has been successfully accomplished, even with such complex compounds as the alkaloids, steroids, hormones, vitamins and antibiotics. Now by slight chemical modification, it is possible to synthesize a considerable series of related compounds, in order to choose the one that is best suited for the particular purpose in mind.

The main criteria for the choice of a drug for a particular purpose are low toxicity, desired activity, prompt effect, easily controlled effect, no untoward reactions, even on frequently repeated administration, and ease of administration and manufacture.

DRUG STANDARDIZATION

In order to be certain of uniformity of clinical response to the same dose of a drug, it is necessary that the drug be standardized. This was recognized as long ago as the sixteenth century. Valerius Cordus (1515-1544) prepared a formulary for the use of the druggists of the city of Nuremberg. This was adopted by the senate of the city as the standard, to be followed by all druggists. This became then the first official pharmacopoeia.[4] The local physicians were now assured that the drugs they ordered by official name would be always the same, with unvarying characteristics. They could thus expect reasonable uniformity of effect from the same dosage of such standard preparations. The drug standards agreed on in pharmacopoeia are usually given legal support. In this country the Food and Drug Administration also protects the public from harm and exploitation in connection with new drugs.

When the active principles of crude drugs were isolated in chemically pure form, a great advance was possible in standardization, since now the crystalline material could be made to conform to specific chemical standards. A more precise relationship between dosage and effect thus became possible.

The American Medical Association at the beginning of the twentieth century established the Council on Pharmacy and Chemistry. This is composed of a group of experts who serve without remuneration. This Council examines the claims of all new drugs. It publishes annually "New and Nonofficial Remedies." To be included in "New and Nonofficial Remedies," a drug must meet certain minimum standards regarding identification, definiteness of action and restriction to reasonable claims, based on available evidence.

Physicians will find it helpful to give increasing attention to the "Pharmacopoeia of the United States" and to "New and Nonofficial Remedies." The "Pharmacopoeia of the United States" was first established in 1820 by a general convention of physicians, druggists and interested public officials. The Pharmacopoeia Convention meets regularly, and delegates are accepted from state and other medical societies. The pharmacopoeia guarantees, by legal support, that drugs offered under the name indicated in the pharmacopoeia must conform to the standards established in the phar-

2. Leake, C. D.: Prolegomenon to Current Pharmacology, Univ. California Publ., Pharmacol. **1**: 1-29, 1938.

3. Leake, C. D.: Ancient Egyptian Therapeutics, Ciba Symposia **1**: 311-322, 1940.

4. Schelenz, H.: Geschichte der Pharmazie, Berlin, J. Springer, 1904

macopoeia. The Food and Drug Administration enforces its standards.

The full value of establishing drug standards in any political area depends on three factors, which physicians should be prepared to support: (1) agreement on what constitutes the standard of reference, (2) agreement on the definition of the drug and on adequate methods of estimating its purity and (3) agreement on enforcement of the standard. The important problem is to obtain agreement. Although difficult, agreement regarding drug standards has been achieved on an international level, and this may well be considered the major accomplishment of the League of Nations. The successful intelligent use of drugs is impossible without an appreciation of the importance of drug standardization.

The use of public names of drugs is important to the physician. It means much saving in money. A chemical agent sold under a "trade name" may cost ten times as much as the same drug sold under a public name. It is important for physicians to know the public names, if available, of proprietary drugs and to use such drugs under public names.[5] When physicians do a lot of dispensing it is economical to use drug names as listed in the pharmacopoeia and when using combinations of drugs to follow the formulas in "The National Formulary."

When new drugs are developed for medical use, there is a systematic way of appraising their value.[6] This should begin with an exhaustive study of toxicity on single and repeated dose. All phases of possible toxic action should be analyzed and described for the benefit of the physician. There should then be offered full information on rates and ways of absorption into the body. What happens to the drug in the body should be studied and described. The physicians should be informed regarding the rate of detoxification and the rate and mode of excretion. General and special pharmacologic properties should be described in detail. This information should be offered in comparison with related and commonly used chemicals offered for the same purpose. The physician is then in a reasonable position to judge for himself what may be the best drug, in a series of related compounds, for the particular purpose he has in mind. It is this sort of evidence that the physician should insist on receiving from commercial pharmaceutic concerns. He should be offered more straight information regarding what a drug does and how it acts than persuasive suggestions for what clinical conditions to use it. The physician's judgment should tell him for what purposes to use a drug. It is not the function of commercial pharmaceutic concerns to tell a physician how to practice medicine. It is their responsibility, however, to give the physician full scientific information regarding the drug they are interested in promoting.

When a drug has been thoroughly studied in a scientific manner, it may be ready for controlled clinical evaluation. In this it is essential to take into account the natural history of the particular diseased condition in which it is proposed to study the drug. The clinical investigator must estimate the healing power of nature in respect to the particular disease with which he is dealing. He must also beware of the logical fallacy of confusing sequence of events with cause and effect. If there is sound clinical evidence to support the scientific background of the drug, there may be justification for its inclusion in "New and Nonofficial Remedies" and its being offered to physicians for general clinical use. But physicians should insist always on having this information, and they should then appraise for themselves the evidence regarding the drug.

FACTORS MODIFYING DRUG ACTION

The chief factors modifying drug action are dosage, the ratio of the rate of absorption of the drug through the body to the rate of its destruction or excretion, the physical-chemical properties of the drug and the individual peculiarities of the particular patient to whom the drug is given. The relation of these factors to the intensity of drug action may be indicated by the shorthand formula:

$$I = (f)\, D \frac{rA}{rE}, P, S$$

where I is the intensity of drug action, D is dosage, rA is rate of absorption or distribution of the chemical through the living tissue involved, rE is the rate of excretion or removal of the drug from the living tissue concerned, P is the physico-chemical properties of the drug and S is the peculiar individual characteristics and sensitivities of the particular patient or living tissue concerned.

By dosage is meant mass of chemical per mass of body tissue excluding fat. This suggests the importance of dosage on the basis of milligrams of drug per kilogram of body weight. Many of the newer drugs are being introduced for use in this manner. Drugs with a more general and less toxic action may be given by "average dose," but for precise drug use it is wise to work out dosage in terms of milligrams per kilogram or in terms of millimol equivalents.

The mode of administration profoundly modifies dose effects. This is because the mode of administration is important in the rate of absorption of the drug. It is practically helpful for the physician to study technics of medication, in order to obtain the most satisfactory results with patients.[7] Absorption is slowest, of course, through the skin. It is next most rapid through the mucous membranes of the alimentary tract. It is important to remember the rectum as an absorbing area when it may be difficult to get satisfactory administration by mouth. Absorption of gaseous agents across the respiratory mucous membrane is very rapid. Intramuscular injection offers steady absorption for drugs in oil suspension. Parenteral administration, of course, requires aseptic precautions. Subcutaneous injection is not a particularly satisfactory method of administering drugs, but it is widely used. The most rapid distribution is obtained when a drug is given by vein. Sometimes a drug may be given into the spinal canal for particular local effects there. It is wise to remember that drugs may be absorbed from the mucous membranes of the vaginal tract, the ear or the eye.[8] Sometimes a drug given only for local effect at the point of application may be absorbed and produce a systemic reaction.

5. Fantus, B.: Economy in Medication, J. A. M. A. **110**: 880 (March 19) 1938.

6. Leake, C. D.: Pharmacologic Evaluation of New Drugs, J. A. M. A. **93**: 1632-1634 (Nov. 23) 1929. Van Winkle, W.; Herwick, R. P.; Calvery, O. H., and Smith, A.: Laboratory and Clinical Appraisal of New Drugs, ibid. **126**: 958-961 (Dec. 9) 1944.

7. Fantus, B.: The Technic of Medication, Chicago, American Medical Association, 1926. (Dr. Austin Smith, Secretary of the Council on Pharmacy and Chemistry, has prepared a new edition of this useful practical guide.) General Technic of Medication, Chicago, American Medical Association, 1948.

8. Macht, D.: Absorption of Drugs and Poisons Through the Skin and Mucous Membranes, J. A. M. A. **110**: 409-414 (Feb. 5) 1938.

It is helpful to know something about the rate of drug destruction or excretion.[9] This gives the clue to the important problem of how frequently to repeat administration. Many drugs, such as penicillin or the sulfonamide compounds, are rapidly excreted in the urine and require frequent administration in order to maintain the concentration necessary for effectiveness. Many drugs are detoxified by combining with amino acids in the body. When this is possible, allergic effects may occur from the drug.[10] All drugs which have a ring structure chemically, with amino groups or phenolic hydroxyl groups, may combine with amino acids and thus give rise to allergic responses in sensitized tissue. Drugs such as aspirin, amidopyrine, the sulfonamide compounds, local anesthetics and aniline derivatives may combine readily with amino acids and produce allergic effects. A physician cannot tell which patient may show the allergic reaction or where, but he should be prepared to expect such reactions in at least 5 per cent of patients given such drugs.

Strenuous efforts are being made to delay the excretion of penicillin (by giving such agents as caronamide) or to decrease the rate of absorption (by use of procaine conjugates in oil), so as to prolong the effective concentration. When we know more about the chemical makeup of penicillin we may be able to devise chemical relatives which will be more slowly excreted and so give a more lasting effect.

The physical chemical properties of drugs are important with respect to their action in the body. If the drug is more soluble in oily material than in water, it will tend to concentrate in the oily parts of the body. Those of greatest functional importance are the elements of the nervous system. Thus, most drugs acting on the nervous system have a high oil-water solubility coefficient. The redox potentials of drugs, as well as their polarity properties, are important in respect to their reaction with enzyme systems in cells. These are matters which will become increasingly significant as we learn more about them, and physicians should be prepared to acquire this new knowledge as it develops.

Highly pertinent from the physician's standpoint is the estimation of the peculiarities of his individual patient with respect to drug reaction. Age, sex, metabolic state, constitutional factors and allergic tendencies must be appraised. Careful clinical judgment is required of the physician to evaluate those individual factors in his particular patient which may influence drug action. In general, the high metabolic rate of infants diminishes quickly to rise gradually to adolescence and to maintain a plateau until the fourth or fifth decade, when there is gradual decline. The estimation of metabolic status is a difficult clinical problem, but it is significant in connection with the activity of many different types of drugs. Some drugs, such as morphine, do not follow ordinary rules regarding age effects. Infants and old persons in general are more sensitive to morphine than persons in the prime of life. It is particularly important to appraise the autonomic nervous balance. Some persons may be peculiarly sensitive to sympathetic drugs, while others may show a higher sensitivity with respect to drugs acting on the parasympathetic system. Most important is the proposition of appraising allergic tendencies in a patient. This should always be investigated in order to avoid, if possible, allergic or other untoward reactions to drugs which may produce such undesired effects.

9. Stekol, J. A.: Detoxication Mechanisms, in Luck, J. M.: Annual Review of Biochemistry, Stanford University, Calif., Annual Reviews, Inc., 1941, vol. 10, pp. 265-284. Handler, P., and Perlziveig, W. A.: Detoxication Mechanism, ibid., 1945, vol. 14, pp. 617-642. Williams, R. T.: Detoxication Mechanisms: The Metabolism of Drugs and Allied Organic Compounds, New York, John Wiley & Sons, Inc., 1948.

10. Landsteiner, K.: The Specificity of Serological Reactions, Springfield, Ill., Charles C Thomas, Publisher, 1936.

DOSE-EFFECT RELATIONSHIPS

Physicians must remember that different persons will respond differently to the same dose of the same drug.[11] This factor of individual variation in response to drugs can roughly be represented by "distribution curves" in which increasing intensity of reaction to the same dose is indicated along the horizontal axis, while the vertical axis shows the number of persons grouped with regard to the same intensity of reaction. In general there will be some persons who will show a relatively small response. The great majority will show the "average effect." A small number of persons may show a particularly intense reaction from a dose that might produce no effect in the less sensitive person.

When results are accumulated with reference to all or no effect (as cure or death), the curve is sigmoid and shows the percentage of persons reacting, when arranged on the vertical axis, to increasing dosage on the horizontal axis. Such curves are particularly important in the quantitative estimation of toxicity and effectiveness.

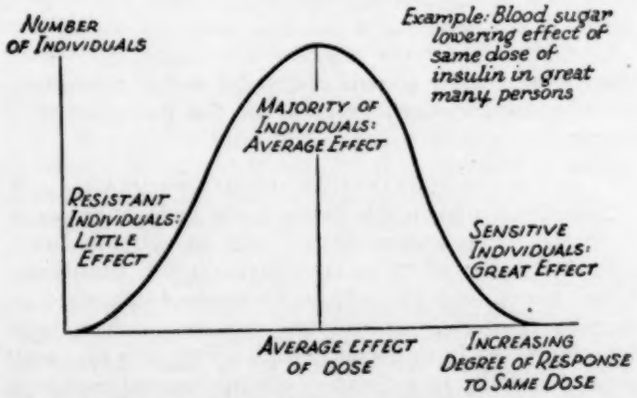
NUMBER OF INDIVIDUALS
Example: Blood sugar lowering effect of same dose of insulin in great many persons
MAJORITY OF INDIVIDUALS: AVERAGE EFFECT
RESISTANT INDIVIDUALS: LITTLE EFFECT
SENSITIVE INDIVIDUALS: GREAT EFFECT
AVERAGE EFFECT OF DOSE
INCREASING DEGREE OF RESPONSE TO SAME DOSE

Fig. 1.—Relation of the number of reacting persons to graded response to the same dose of a drug (example: lowering effect of the same dose of insulin on the blood sugar in many persons).

Because of its ease of estimation under experimental conditions, the 50 per cent point on the curve is usually taken as the standard of reference. Thus, ED_{50} refers to the 50 per cent effective dose, that is, the dosage which will be effective, in the intensity desired, on 50 per cent of the organisms to which the drug is administered. In the same way LD_{50} refers to the dosage at which 50 per cent of the organisms to which the drug is administered may be expected to die. The ratio between the ED_{50} and the LD_{50} of a drug under standardized experimental conditions is sometimes referred to as the "safety index."

In applying this scientific knowledge, however, it is essential for the physician to remember that he is not interested in the dosage which will produce the desired effect in only 50 per cent of his patients, and he is certainly not interested in the dosage which may kill 50 per cent of his patients. The point is that the effective dose range of a drug may overlap the lethal range or the range of toxic reaction. This is the case, for example, with such drugs as emetine hydrochloride. Since the mechanisms of desired action and of death

11. Clark, A. J.: Individual Variation in the Response to Drugs, Tr. Med.-Chir. Soc. Edinburgh 42: 1-16, 1935; in Edinburgh M. J., (January) 1935.

may be different, the "slopes" of the curves may differ and overlap may readily occur. It is practically important for physicians to require pharmaceutic manufacturing houses to give precise information on the ED_{99} with relation to the LD_1, that is the ratio between the dosage which might be expected to produce the desired

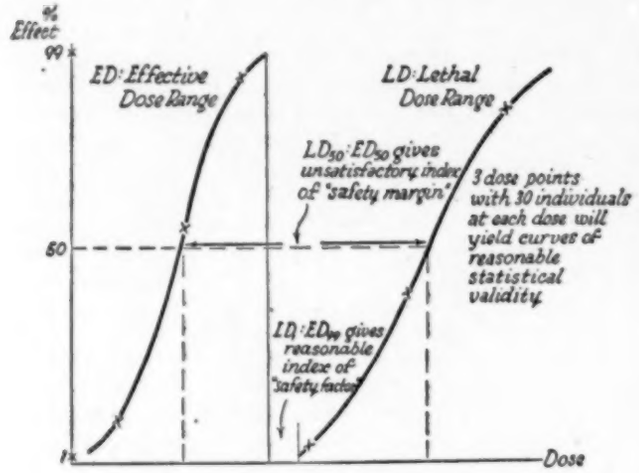
% Effect
99
50
1
ED: Effective Dose Range
LD: Lethal Dose Range
LD50: ED50 gives unsatisfactory index of "safety margin"
3 dose points with 30 individuals at each dose will yield curves of reasonable statistical validity
LD1: ED99 gives reasonable index of "safety factor"
Dose

Fig. 2.—Relation of dose to percentage effect.

effect in practically all patients, to the dosage that might produce an untoward reaction in the most sensitive patient.[12]

TIME-CONCENTRATION RELATIONSHIPS

Time is an unavoidable factor in the biologic response to drugs. For certain drugs, such as the inhalation anesthetics, the effective concentration for anesthesia, if maintained long enough, might produce untoward or even lethal effects. Accordingly, it is necessary to have data expressed in time-concentration curves. This may assist materially in estimating absorption and excretion gradients in relation to time and concentration for many important types of drugs. One wishes, of course, to obtain a concentration which within a reasonable time will produce the desired effect, but which will not produce undesired effects even if maintained for a relatively long period of time.

The concentration of a chemical in any particular living tissue at any given moment after administration is calculated from the product of dosage (mass of chemical per mass of living material) and the ratio of the rate of absorption into the tissue to the rate of its removal from it. There is a direct relation between concentration and intensity of effect.

MECHANISMS OF DRUG ACTION

While the dose-effect relationship with regard to drugs was anciently implied as a scientific problem for pharmacology, the question of the mechanism by which drugs act was not raised in a scientific manner until the nineteenth century. Greek, Roman and medieval physicians developed elaborate theories of drug action with reference to the balance of "humors." Crude and easily observable physical properties of drugs, together with easily recognizable effects, were "fitted" into the humoral theory as well as possible. Drugs were assessed from the standpoint of their cooling, heating, astringent, caustic, purgative or other properties and used generally in an effort to obtain an idealized balance of humors. A powerful reaction against the severe abuse of drug therapy during the eighteenth century resulted in the effort under C. F. S. Hahnemann (1755-1843) to develop "homeopathy," in which ridiculously small doses of drugs were recommended. This attempt did, however, remind physicians effectively of the healing power of nature and indirectly assisted in a more systematic study of the mechanism of drug action.

With the development of modern chemistry, following the pioneering quantitative studies of A. L. Lavoisier (1743-1794), and the isolation and identification of the active principles of crude drug in crystalline pure form, it was possible for the first time to begin a quantitative study of drug action, with particular reference to mechanism. Francois Magendie (1783-1855) first undertook the study of the localization of the site of action of drugs. In this he was assisted by his remarkable English pupil James Blake (1815-1893). A study developed of factors determining the concentration of drugs in particular tissues, as a result of a survey of factors concerned in absorption and in destruction or excretion. Oswald Schmiedeberg (1838-1921) inaugurated systematic studies on the fate of drugs in the body when he found that chloral is reduced to trichloroethanol and conjugated with glycuronic acid to be excreted in the urine. The action of drugs was studied with reference to the point of application, not only with regard to precipitation of protein, but also with respect to possible reflex nerve responses. Studies were later made on the effects of drugs in transport through the body. This led to the first satisfactory scientific explanation of drug action, in the work of Claude Bernard (1813-1878) on the action of carbon monoxide in displacing oxygen from hemoglobin and thus producing all the effects of oxygen want.[13]

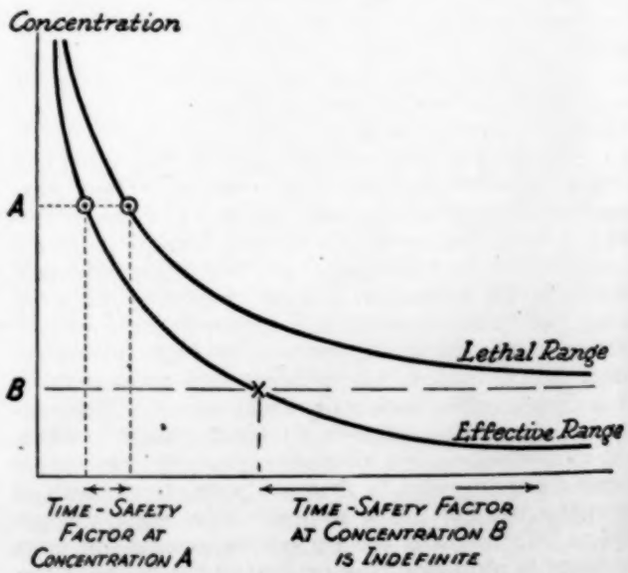

Fig. 3.—Time-concentration relations (example: inhalation anesthetics).

Following Blake's demonstration of chemical relationships in drug action, with reference to inorganic salts, A. C. Brown (1838-1922) and T. R. Fraser (1841-1919), in showing the curare-like effect of quaternary ammonium derivatives of various alkaloids,[14] empha-

12. Foster, R. H. E.: Standardization of Safety Margin, J. Pharmacol. & Exper. Therap. **65**: 1-17, 1939.

13. Bernard, C.: Leçons sur les anesthésiques et sur l'asphyxie, Paris, J.-B. Baillière, 1875.

14. Brown, A. C., and Fraser, T. R.: On the Connection Between Chemical Constitution and Physiological Action, Tr. Roy. Soc. Edinburgh **25**: 151-203, 1868-1869.

sized an extreme physicochemical position in the mechanism of drug action. They postulated that the action of a drug is entirely a function of the chemical structure and energy relations of its molecule. This approach has been brilliantly developed with the introduction of many new useful drugs by a host of chemists, such as the German researchers stimulated by Willstatter, Ehrlich, Emil Fischer and Wieland, the French group influenced by Fourneau and Levaditi, the Swiss workers as Karrer, Meier, Ruzicka and Stoll, the English investigators as Cook and Robinson and such Americans as Adams, Alles, Fieser, Jacobs, Kamm, Major, Shonle, Small and SubbaRow. Unfortunately, physicians have little contact with such important scientific leaders in the development of drugs. It might help to ask them to discuss their work at medical meetings.

The chemical approach to the mechanism of drug action was modified slightly in the well known study of H. H. Meyer (1853-1939) and C. E. Overton on lipid solubility of narcotics.[15] In the famous side chain theory [16] of Paul Ehrlich (1854-1915) there was greater appreciation of the significance in drug action of physiologic factors involving the living material. Many modifications of Ehrlich's views are current. They have been thoroughly surveyed by Clark.[1] Extensions of Ehrlich's theories by Pauling are particularly interesting in relation to antibody formation.[17]

The leading contributors to modern pharmacologic theory are the English. General impetus has come from Sir Henry Dale and A. V. Hill. Stabilization of drug standards and of criteria for quantitative study of drug action has resulted from the fundamental work of Trevan, Gaddum, Clark and Burn. The mechanisms of drug action are being investigated by Haddow, Hawking, Ing, McIlwain, Peters, Quastel, Rideal and Yorke.[18] The English symposiums and reviews on current pharmacology are the most satisfactory of any available and deserve extended study.

Recent studies on the mechanism of drug action have been directed toward the basic units concerned, which are molecules of drugs in relation to living cells. This has been well explored by A. J. Clark (1885-1941) and his English followers.[1] Clark called particular attention to the relatively small size of the molecules of a drug in comparison to the relatively large size of the cells on which they act. He pointed out that the large number of molecules of a drug, even in a small mass, would compensate for the difference in size. However, in many instances, as with cholinergic or adrenergic compounds, the number of molecules capable of producing an effect can be explained only on the basis of chemical reaction with a small active patch on the surface of the cell.

Drug action is at a molecular level and involves relations between molecules of drug and molecules of cell receptors. Thus, investigation of the molecular architecture of cells, including the organization of the various cell interfaces, becomes prerequisite to further clarification of the mechanism of drug action. Such study reveals the significance of short range (van der Waals) association forces in drug-receptor relationships. The chief chemical factors involved are hydrocarbon, polar and ionic groups, with spacing and stereochemical factors determining the resulting forces of association. These forces vary in geometric proportion to the distances between relevant groups, suggesting the sensitiveness of the association forces to the orientation of the molecules concerned. Slight changes in spacing, dipole charge or ionization may form or split an association complex, thus accounting for high specificity and rapid enzyme reversibility. Competition between related chemicals in regard to receptor complexes in cell interfaces or other molecularly organized cellular structures results in effects determined by mass law equilibriums. The approach to pharmacologic problems through a study of molecular architecture of cells and receptor complexes permits an attempt to apply quantum theory to pharmacologic mechanisms, which has already shown to be so promising in connection with various mutafacient agents.[19]

Most of the current theories regarding the mechanism of drug action involve surface phenomena. These concern surface tension, polarity, template effects, blocking effects, "active patches" and a competitive effect involving essential metabolites in complicated enzyme systems.

In order to understand current theories of the mechanism of drug action, it is essential to know something about the surface organization of cells. According to the admirable summary by Davson and Danielli,[20] the cell surface is composed of a double layer of oriented lipid molecules, with single flattened molecules of protein spread on the outside and inside. These protein molecules may have reactive chemical groupings exposed to the surface, to which various compounds in the intercellular fluid, including drugs, may attach. On the other hand, certain ions may pass between the protein molecules and get into the lipid layer and eventually into the inside of the cell. Other compounds in the intercellular fluid may disrupt the proteins on the surface, dissolve the fats in the lipid layer and thus profoundly alter the surface tension with resulting injury or rupture of the cell. Certain molecules attaching to the surface of the cell may block other essential molecules from reacting with the cell in ordinary metabolism, thus altering the activity of the cell. It is now known that many chemicals, such as the sulfonamide drugs, act by interfering with essential metabolites, particularly vitamins, through competition involving similarity of chemical structure.[21] It is also now well established that many drugs, such as organometallic chemotherapeutic agents, act by disturbance of enzyme systems either on the surface of cells or inside cells.

An important point for physicians always to remember with respect to drug action is that drugs can only make cells do more or less what they are already capable of doing. No drug, for example, can make a muscle cell secrete urine. No drug can restore the functional activity of a cell so damaged as to be incapable of that function.

15. Overton, C. E.: Studien über die Narkose, zugleich ein Beitrag zur allgemeinen Pharmakologie Jena, G. Fischer, 1901.

16. Ehrlich, P.: Das Sauerstoff-Bedürfniss des Organisms: Eine farbenanalytische Studie, Berlin, Hirschwald, 1885.

17. Pauling, L.: Antibodies and Specific Biological Forces, Endeavor 7: 43-53, 1948.

18. Modes of Drug Action, Tr. Faraday Soc. **39**: 319-444, 1943.

19. Schrodinger, E.: What Is Life? The Physical Aspect of the Living Cell, Cambridge, Harvard University Press, 1945. Haddow, A.; Boyland, E., and others: Symposium on Chemical Carcinogenesis, Brit. M. Bull. **4**: 309-426, 1947. Boyland, E.: Chemical Carcinogenesis and Cancer Chemotherapy, Yale J. Biol. & Med. **20**: 321, 1948.

20. Davson, H., and Danielli, J. F.: The Permeability of Natural Membranes, Cambridge, Mass., Harvard University Press, 1943.

21. Woods, D. O.: Relation of p-Aminobenzoic Acid to the Mechanism of Action of Sulphanilamide, Brit. J. Exper. Path. **21**: 74-90, 1940. McIlwain, H.: Interpretation of Chemotherapy Through Nutritional Studies, Lancet **1**: 412-415 (April 4) 1942. DuBos, R. J.: The Bacterial Cell in Its Relation to Problems of Virulence, Immunity and Chemotherapy, Cambridge, Mass., Harvard University Press, 1945.

BIOCHEMORPHOLOGY: THE RELATION BETWEEN CHEMICAL CONSTITUTION AND BIOLOGIC ACTION

It is becoming increasingly important in a practical way for physicians to understand something about the relationship between chemical constitution and biologic action of drugs. This fascinating subject was first investigated by that remarkable gold rush physician, James Blake (1815-1893), who came to the United States after a short brilliant scientific career in London. About a hundred years ago he settled in St. Louis, joining later the gold rush to California. After a remarkable clinical and scientific career in California, which included meteorology, archeology, geology and zoology, he returned to his earlier scientific investigations on the relationship between chemical constitution and biologic action, with particular reference to inorganic salts. Anticipating Meyer and Mendeljeff by many years, Blake classified the elements into groups on the basis of the biologic action of their salts.[22] These groups, of course, correspond to what we now call the "periodic table."

Journal Publications of the Council on Pharmacy and Chemistry, January-May 1948

Date	Subject	Remarks
Jan. 3	Organomercurials	Appraisal of "mercurochrome," "metaphen" and "merthiolate"
Jan. 24	Human serum albumin in nephrosis	Also notes on names of new drugs
Jan. 31	Acceptances for N.N.R.	Routine for approved preparations
Feb. 7	Statement on drug advertising	Suggests support for Council policies
Feb. 14	Names and acceptances for N.N.R.	
March 6	Annual meeting; protein and amino acid preparations	Also discussion of protein hydrolysates
March 20	Oxidized cellulose	Monograph for N.N.R.
March 27	Penicillin in treatment of syphilis	Report of Syphilis Study Section, National Institute of Health
April 3	Acceptances for N.N.R.	
April 10	Acceptances for N.N.R.	
April 17	Chloroquine diphosphate	Monograph for N.N.R.
April 24	Isobornyl thiocyanoacetate	Monograph for N.N.R.
May 24	Metopon HCl; folic acid; BAL in oil	Review and monographs for N.N.R.
May 29	Alcohol-dextrose and dextrose-vitamin solutions for intravenous infusion	Not acceptable for N.N.R.

It is interesting to learn what similarity of depressant action exists between the various members of the aliphatic organic compounds. Similarly, a common pharmacologic property of most alkaloids is rapidity of absorption and distribution and rapidity of destruction or excretion. On the other hand, all steroids, including vitamin D, sex hormones, digitalis and carcinogenic agents, are slow in action, with slow absorption and destruction, but the action lasts for a long time even from small dosage.

As we learn more about energy distribution and potentiality, we will be able more satisfactorily to predict possible biologic action of new chemical compounds. Indeed, some advance in this respect has already been made.

CLASSIFICATION OF DRUGS

The most satisfactory classification of drugs for the practical work of the physician is on the basis of the chief use of the drug. There are four major divisions into which drugs may be grouped on this basis: first, those drugs used chiefly for diagnosis, such as the halogenated phenolphthaleins; second, those drugs used chiefly for the prevention of disease, such as the vitamins and the antiseptics; third, those drugs used chiefly for "cure," such as quinine in malaria, and fourth, those drugs used chiefly for the alleviation of the symptoms of disease.

By far the greatest number of drugs used in medicine are employed for the alleviation of the symptoms of disease. These may be subdivided into the systems of the body on which the chief effect may be expected. Thus, one could treat of the drugs which act chiefly on the central nervous system, either as depressants or stimulants, those which affect the autonomic nervous system and its various divisions in either a stimulating or depressing way, those which act mainly on the heart and circulation, those which are used especially for effects on respiration, those which are employed usually in connection with the gastroenteric tract, those which generally produce effects on the excretory system, those which alter the endocrine system and those given chiefly for local effects on the skin.

It is important to remember that chemicals used for diagnostic purposes may have significant toxicity and thus deserve full consideration as drugs. Similarly, it is wise to recall that some of the vitamins used for the prevention of disease may under certain conditions have undesired effects and should also be considered from the standpoint of their general pharmacology. Drugs that are used for curative purposes are chiefly involved in the general field called "chemotherapy."

COMMENT

In a survey of this character, it is impossible to do more than suggest the many and various new types of chemicals which are finding significant practical application as a result of pharmacologic investigation. To discuss merely the new antihistaminic drugs, for example, would take many pages. Physicians will be wise to wait until reports are made on new drugs by the Council on Pharmacy and Chemistry of the American Medical Association. These reports are published, as appropriate, in THE JOURNAL. The wide variety and practical importance of these reports are indicated in the accompanying table, which lists those published in the first third of this year.

SUMMARY

When new drugs are acceptable for general clinical use, they are ordinarily described in detail in "New and Nonofficial Remedies." Physicians are cautioned to be sceptical of the descriptions of new drugs offered by pharmaceutic manufacturers in overly elegant brochures or other publications. It is safer and cheaper for the patient for physicians to restrict themselves to such drugs as are described in the "Pharmacopoeia of the United States," "The National Formulary" and "New and Nonofficial Remedies."

A matter of prime importance in the use of drugs, as in any technical procedure in medicine, is to weigh the hazards of the drug against the hazards of the disease. Only in a critical or most urgent condition is the physician justified in taking a risk for his patient through the use of a drug which may have untoward or dangerous effects. The physician should, of course, know thoroughly in advance what symptoms may appear as a result of toxic action and be prepared to counteract them promptly.

22. Blake, J.: On the Influence of Isomorphism in Determining the Reactions That Take Place Between Inorganic Compounds and the Elements of Living Things, Am. J. M. Sc. 55: 63-76, 1848.

This discussion reviews in general terms some of the basic pharmacologic principles which may be useful in clinical practice. It emphasizes the value of acquaintance with such important concepts as drug standardization, factors determining the intensity of drug action, dose-effect and time-concentration relations and mechanisms of drug action. Suggestions are made as to what information about drugs is practically helpful for physicians to know. It rather hesitatingly indicates how much more efficient and economical physicians might be in the use of drugs if they would put more time to the study of fundamental principles in pharmacology and to the reports of the Council of Pharmacy and Chemistry of the American Medical Association and if they would restrict the drugs they use to those admitted to "New and Nonofficial Remedies" and the "Pharmacopoeia of the United States."

DERMATITIS RESULTING FROM CONTACT WITH MOTHS (GENUS HYLESIA)

Report of Cases

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and
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Dermatitis as a result of contact with the brown tail moth (Euproctis chrysorrhea Linn) was first observed in the United States by White [1] in 1901. The rash was noted a few minutes to several hours after exposure to the cocoon, caterpillar or adult moth and either remained localized at the site of contact or became generalized. The most frequently occurring lesion [2] was a discrete erythematous maculopapule occurring singly or in groups, which in the cases of severe disease coalesced to form urticarial wheals. Steele and Sawyer [3] described wheals with vesicular or shallow necrotic centers. Pruritus was a constant complaint and was described as mild to intense; constitutional symptoms were not noted. The duration of the eruption varied from five to seven days, although in rare instances several weeks elapsed before resolution.

While it was recognized early that the dermatitis was provoked by the nettling hairs functioning as foreign bodies, it remained for Tyzzer [4] to demonstrate that a chemical substance present within the hair was capable of acting as a cutaneous sensitizer. This latter property could be destroyed by heat or alkali without altering the hair structure.

Dermatitis resulting from contact with other species of moths (genus Hylesia) has been reported in South America by Léger and Mouzels,[5] but so far as can be determined an eruption due to this genus has not been observed in the United States, where the genus does not occur.

It is the purpose of this paper to call attention to an eruption observed in 31 persons, members of the crew of an oil tanker, the *Wolfcreek*, who had been exposed to moths (genus Hylesia) in Cari Pito, Venezuela, and later on board the vessel during and immediately following its return voyage to Boston.

All but 2 of these patients were examined at the United States Marine Hospital, Brighton, Mass., on Feb. 23, 1947, at which time 4 patients, whose histories are reported in detail, were admitted to the hospital, remaining there for five days. Two types of cutaneous lesions were observed, one a localized form of grouped erythematous papules and papulovesicles, on the arms, legs or back, and the other a generalized urticarial variety suggesting morbilliform toxicoderma, most apparent on the flexor surface of the forearms, anterior aspect of the chest, abdomen and thighs (fig. 1, case 3).

For the most part the face, palms, soles and mucous membranes were devoid of lesions. In the majority of the patients the lesions appeared at intervals varying from a few minutes to several hours after initial contact, with an acute course and disappearance in four to seven days.

REPORT OF CASES

CASE 1.—G. W., a 20 year old American merchant seaman, was admitted to the United States Marine Hospital, Brighton, Mass., on Feb. 23, 1947, with the complaint of a pruritic rash on the trunk, neck and extremities. He stated that on the night of February 15, a few hours after dropping anchor at Cari Pito, Venezuela, a swarm of moths invaded the ship. He and several other members of the crew killed a number of these by crushing them between their fingers, and later they exploded a dichlorodiphenyltrichloroethane (DDT) bomb in an attempt to destroy them. Shortly thereafter the patient noted several "small white itching bumps" on the uncovered skin of the abdomen at the belt line. The following morning the eruption had spread over the entire body with the exception of the face, palms and soles. He applied calamine lotion to the cutaneous lesions, which decreased the pruritus and resulted in a gradual subsidence of the dermatitis. The vessel remained in Venezuela for forty-eight hours to take on cargo, during which time he did not go ashore. On February 22 there was a recurrence of the generalized dermatitis.

Physical examination on February 23 revealed a well developed man whose only complaint was intense pruritus and who presented a diffuse urticarial eruption on the trunk, flexor surface of the forearms and lower part of the legs, anterior aspect of the thighs and neck. The individual lesions varied from 2 to 5 mm. in diameter, but here and there they had coalesced to form larger irregular wheals, some of which were palm sized. Many of the smaller lesions were surmounted by intact translucent vesicles or had excoriated surfaces. Pinhead-sized purpuric macules were scattered irregularly throughout the erythematous papules and were especially noticeable on the dorsal surface of the penis and on the lower part of the abdomen. The skin of the face, scalp, palms and soles was normal; the mucous membranes were unaffected. The remainder of the physical examination revealed no abnormalities.

During the hospital stay the temperature remained normal, and the rash subsided gradually without treatment. On discharge five days after admission the skin was entirely free of eruption.

The white cell count on admission was 6,350, with 67 per cent neutrophils, 22 per cent lymphocytes, 4 per cent monocytes and 7 per cent eosinophils. The hemoglobin (Westgren) was 14 Gm. The results of the urinalysis were normal, and serologic tests for syphilis elicited negative reactions.

CASE 2.—W. S., a 26 year old American merchant seaman, was examined on Feb. 23, 1947, at the United States Marine Hospital, Brighton, because of dermatitis of the trunk, extremi-

From the United States Marine Hospital, Brighton, Mass.
Assistant in Medicine and Assistant in Dermatology, Harvard Medical School and Massachusetts General Hospital (Dr. Hill), Instructor, Department of Epidemiology, Harvard School of Public Health, and Director, Division of Hospital Survey and Construction, Massachusetts Department of Public Health (Dr. Rubenstein), and Senior Assistant Surgeon, United Public Health Service (Dr. Kovacs).

1. White, J. C.: Dermatitis Produced by a Caterpillar, Boston M. & S. J. **144**: 599, 1901.
2. Potter, A.: Brown Tail Moth Dermatitis, J. A. M. A. **53**: 1463-1464 (Oct. 30) 1909.
3. Steele, C. W., and Sawyer, W. H., Jr.: The Brown Tail Moth, J. Maine M. A. **35**: 157, 1944.
4. Tyzzer, E. E.: The Pathology of the Brown Tail Moth Dermatitis, J. M. Research **11**: 43, 1907.
5. Léger, M., and Mouzels, P.: Dermatose prurigineuse déterminée par des papillons Saturindes du genre Hylesia, Bull. Soc. de path. exot. **11**: 404, 1918.

ties, neck and ears. He, together with the patient in case 1, had swatted moths which entered the vessel on the night of February 15 and was present when a DDT bomb was exploded. Shortly thereafter he noted "itchy bumps" on the volar aspect of his wrists. By the following day the pruritus had subsided, but two days later the eruption had spread to involve the remainder of the skin, with the exception of the face, palms and soles. The patient stated that he had not been ashore in Venezuela and that the only native food he had eaten was bananas. He recalled an eruption which had occurred a few hours after handling DDT some months prior to the present eruption.

On admission the patient was observed to have an eruption similar to that described in case 1. The white cell count was 6,600, with 45 per cent neutrophils, 38 per cent lymphocytes, 6 per cent monocytes and 11 per cent eosinophils. The hemoglobin (Westgren) was 14.4 Gm. The urine contained 2 to 3 red cells per high power field, but this could probably be explained by the fact that the patient had a renal condition in 1945 requiring surgical intervention. The serologic reaction for syphilis was negative. During the hospital stay, a patch test was performed with a piece of sheet which had been used on the patient's bed on board ship, and no reaction was noted at the site forty-eight hours later. The eruption faded without treatment in two days, and he was symptom free on discharge at the end of five days.

Fig. 1 (case 3).—Dermatitis due to moths of the genus Hylesia. Erythematopapular eruption on the trunk and extremities with scattered vesicles on the forearms. The large lesion on the anterior aspect of the right thigh is at the site of a patch test with hairs of the moth, which produced a positive reaction.

CASE 3.—J. K., a 22 year old merchant seaman, had noted insect bites on his right upper lid on Feb. 16, 1947, the day of departure from Venezuela. However, it was not until arising on the morning of February 22 that he first noted the presence of itchy "small white bumps" on his chest and the flexor surface of his wrists. Twenty-four hours later the rash had spread to involve most of the body. With the exception of intense pruritus, there were no constitutional symptoms.

Examination on admission to the hospital revealed a diffuse erythematopapular hemorrhagic eruption of the trunk and extremities, together with edema of the eyelids. On the anterior surface of the forearms a few scattered vesicles were also seen (fig. 1).

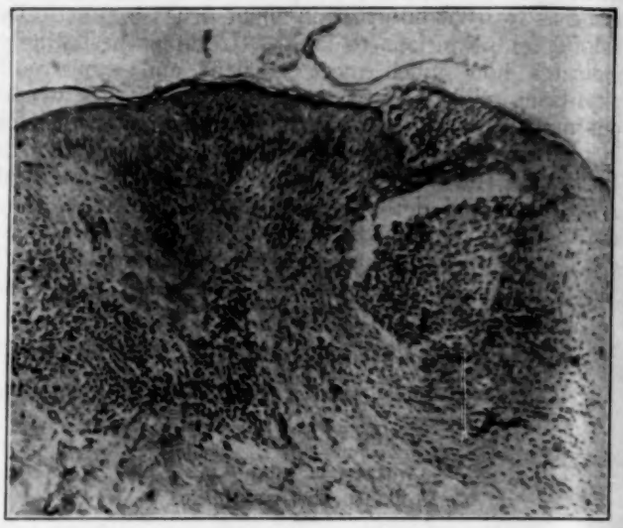

Fig. 2.—Dermatitis due to moths of the genus Hylesia. Photomicrograph (× 100) showing an intraepidermal vesicle and the acute nonspecific infiltrate in the upper part of the cutis.

The white cell count on admission was 5,250, with 57 per cent neutrophils, 32 per cent lymphocytes, 8 per cent monocytes and 3 per cent eosinophils. Urinalysis showed 2 to 4 white cells per high power field. Serologic tests for syphilis elicited negative reactions. Patch tests were performed with a piece of a new unused sheet, with a piece of sheet discolored by the moth and with hairs of the moth. The reaction to the test with the clean sheet was negative, but itching was noticeable within one-half hour of application and a violent papulovesicular eruption appeared at the test site twenty-four hours after the discolored sheet and the hair of the moth had been applied.

Specimens for biopsy were removed from an urticarial papule on the forearm and from the skin at the site of the patch test with the moth hairs (fig. 2). The former of these sections of skin revealed diffuse vascular dilatation throughout the upper part of the cutis, together with a moderate perivascular infiltrate consisting of polymorphonuclear leukocytes. The collagen fibers in the upper part of the cutis were edematous and paler staining than those in the deeper layers. The epidermis was thickened, because of ballooning of the prickle cells. Polymorphonuclear leukocytes had invaded the epidermis from below and were seen in scattered foci in the intracellular spaces.

In the section of skin removed from the site of the patch test, forty-eight hours after the moth hairs were applied, a similar microscopic picture was observed, although in general the pathologic reaction was much more intense (fig. 2). The cellular infiltrate in the papillary layer of the cutis was denser and also more toxic, as evidenced by fragmentation of polymorphonuclear leukocytes. A profuse migration of these cells, small lymphocytes and eosinophils had taken place in the epidermis and had resulted in the formation of distinct intraepidermal vesicles. Spicules of moth hair were not observed, nor was a foreign body reaction noted in the cutis.

CASE 4.—H. T., a 35 year old merchant seaman, was well until the day before admission, Feb. 22, 1947, when he first noted "bumps" on the back, which spread within a few hours to the arms, legs and abdomen. Except for pruritus, there were no complaints. On examination, the patient presented lesions similar to those of the aforementioned patients, except that those on the back had coalesced to form plaques 1 to 2 cm. in diameter. The white cell count on admission was 6,000, with 59 per cent neutrophils, 34 per cent lymphocytes, 4 per cent monocytes and 3 per cent eosinophils. Results of the urinalysis

were normal, and serologic tests for syphilis elicited negative reactions. Ten minims of a 1:1,000 solution of epinephrine hydrochloride was administered subcutaneously every four hours for one day, without improvement. On discharge, five days after admission, however, the lesions had entirely disappeared.

EPIDEMIOLOGY

The distribution of cases according to the date of onset is shown in figure 3. Twenty-nine of the 31 persons included in the survey were examined at the United States Marine Hospital in Brighton; the others, both members of the original crew, were examined during an inspection tour of the vessel by one of us (A.D.R.). Not included are several cases in which the eruption developed in new crew members who boarded the ship while in Boston and recurrences which were noted among several of the original patients after they had returned to the ship.

The occurrence of 9 cases of dermatitis on Feb. 22, 1947, acquired epidemiologic significance when it was learned that all these patients had noted the eruption on arising in the morning, the bed linen having been changed on the evening before. Large brown stains were found on the sheets of several patients. The eruption had also been first noted in the morning among those in whom the cutaneous rash had developed

Fig. 3.—Dermatitis due to moths of the genus Hylesia. Chart of cases by day of onset.

on February 20 and 21. In these cases, also, the bed linen had been changed the evening before.

Inspection of the closet where fresh sheets and other linens were stored showed a direct connection with the exterior by means of a wide-meshed metal barrier, sufficient to permit the entrance of moths. The bodies of several moths were found on the closet floor, and others had been suffocated between the stacked sheets.

Patch tests were performed on 1 patient (case 3) and on 2 volunteers who had not previously been exposed to the moth, both with the stained sheets and with hairs from the moth. The type of reaction (fig. 1) when the test was performed using the hair of the moth was similar in each instance to the lesions seen in the majority of patients and pursued a similar clinical course.

CLASSIFICATION AND CHARACTERISTICS OF THE MOTH

Several dead moths found on the ship were referred to the Museum of Comparative Zoology, Harvard University. Cambridge, Mass., for identification.

Mr. V. Nabokov, lepidopterist, identified the moths as females of the genus Hylesia; the species is nearest to Hylesia tapabex Dyar, but, owing to the defective condition of the specimens, the specific identification could not be established with certainty. These moths belong to the family Saturniidae, sometimes called, in English, peacock or silk moths. It consists of numerous species, around one hundred and ten having been described, but the group is so difficult to differentiate and so little known that probably some of the forms described as species are only races of one species. All of these moths are small and gray, with weakly falcated forewings and long coarse hair on the abdomen.

The species of Hylesia inhabit tropical regions of America. Several of them are known to cause dermatitis by the hairs which cover the abdomen. They are found on tree trunks, walls or fences in the daytime. Most of the known larvae are gregarious and undertake processional journeys in search of food. The female moths usually appear in large numbers at certain seasons and then migrate in swarms. They come freely to light, and this may explain their occurrence on shipboard, the vessels being provided with powerful lights.

COMMENT

The majority of patients, whose eruption developed during the return voyage to Boston and while in the port, stated that the initial lesions appeared on the flexor surface of the forearms, anterior aspect of the chest or thighs; in a few the neck or upper part of the back was the initial site. The incubation period ranged from a few minutes (cases 1 and 2) after exposure to several hours, as judged by the statement of patients who had retired in the evening in good health and who had noted an eruption on arising.

The initial lesion appeared to be an erythematous maculopapule or wheal, which in the cases of severe eruption became purpuric or vesicular. In a few instances the rash remained localized to the initial contact site, but in the majority a generalized eruption appeared within twenty-four to forty-eight hours, usually sparing the face, palms, soles and mucous membranes. Whether the generalized eruption indicated individual sensitivity, prolonged exposure to hair of the moth or a large amount of the inoculum could not be determined. Positive reactions to patch tests observed in 1 patient (case 3) and 2 volunteers who had not previously been exposed to the moths suggest that the hair of the moth acts as a primary irritant to which most persons are susceptible.

In all patients, the dermatitis was of short duration and lasted for four to seven days. Unfortunately, further follow-up was curtailed by the early departure of the vessel. It is interesting that the ship was held in quarantine because of the possibility that members of the crew were infected with a contagious disease. The history of contact with moths and the peculiar distribution of cases as to the time of onset were of considerable value in establishing the diagnosis and in removal of the quarantine.

Dermatitis observed in 31 persons in this series was produced by contact with the urticating abdominal hairs of female moths of the genus Hylesia, as shown by positive reactions to patch tests with the hair. The eruption may follow contact with living or dead moths, and the hairs may retain their irritating property over long periods of time, as evidenced by the appearance of the dermatitis eight or more days after the initial invasion. Indirect contact may occur when the urticating hairs are caught in articles of clothing, towels or sheets. Moth dermatitis should therefore be considered in the differential diagnoses of urticarial eruptions,

especially in members of crews of ships or airplanes when ports of call include South American countries.

Removal of the patient from the source of contact, a soap and water bath, a change to clean clothing and application of an alkaline wash resulted in symptomatic relief within twenty-four hours. Diphenhydramine hydrochloride ("benadryl hydrochloride") and tripelennamine hydrochloride ("pyribenzamine hydrochloride") were administered to 16 patients orally in a dosage of 150 mg. daily for several days, without influencing the pruritus or the course of the eruption. Symptomatic relief was not obtained when 10 minims of a 1:1,000 dilution of epinephrine hydrochloride was administered subcutaneously every four hours for one day. Desensitization with extract material of the moth, as advocated by Steele and Sawyer,[3] who employed this method in a case of dermatitis due to contact with the brown tail moth, was not carried out in this series of cases.

SUMMARY

An outbreak of dermatitis resulting from contact with moths (genus Hylesia) is described.

Of 45 members of the crew, an eruption developed in 31 as the result of direct contact with urticating hairs of the adult moth.

The eruption occurred not only as a result of exposure to moths, but after contact with moth-stained bed sheets.

The diagnosis was confirmed by positive reactions to patch tests with moth hairs.

520 Commonwealth Avenue.

CYSTS (PERINEURIAL) OF THE SACRAL ROOTS

Another Cause (Removable) of Sciatic Pain

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New York

This communication calls attention to a pathologic entity that I described in 1938[1] as a chance encounter at autopsy. Cysts of the posterior sacral nerve roots seem to constitute another cause of the sciatic syndrome, which may be dealt with satisfactorily at operation.

Among the manifold causes of sciatica, herniations of the intervertebral disks have emerged as an important entity recently as a result of pathologic studies made by Schmorl and Junghanns,[2] followed by the important clinical work of Mixter and Barr.[3] A group of cases of backache or sciatica or both exist for which an adequate explanation has not been apparent. Moreover, explorations with negative results for protruded intervertebral disks have been carried out in approximately 10 per cent of the patients who presented rather characteristic symptoms and signs of this condition, requiring operation. Such an incorrect diagnosis was made in the present case, in which the clinical picture was observed to have resulted from the presence of an extradural cyst of the second sacral posterior nerve root and ganglion, the pathologic condition previously described[1] (figs. 1, 2, 3, 4 and 5). Removal of the cyst at operation resulted in complete relief from incapacitating symptoms and prompt recession of clinical signs. Exposure of the cyst necessitated removal of the cephalad part of the posterior arch of the sacrum, a procedure not ordinarily carried out in the course of operations for herniated intervertebral disks. Failure to do this may account for some of the negative disclosures in the surgical treatment of sciatica.

In 1938 in the course of dissections of the filum terminale in approximately 30 adults, while at the Montreal Neurological Institute, I encountered 5 cases of perineurial cysts on the extradural portions of the posterior sacral or coccygeal nerve roots.[4] The clinical significance of this experience was not appreciated at that time, although I believed that the cysts might, in the course of time, prove to play a part in the causation of certain cases of sciatica. In view of the present clinical case, this suspicion appears to have been confirmed. It therefore seems imperative to keep this possibility in mind and to carry out the simple necessary steps to establish the presence of such cysts, or to exclude them, in those cases of sciatic pain requiring operation and in which herniation of the intervertebral disk, or any other satisfactory explanation for the clinical syndrome, is not found.

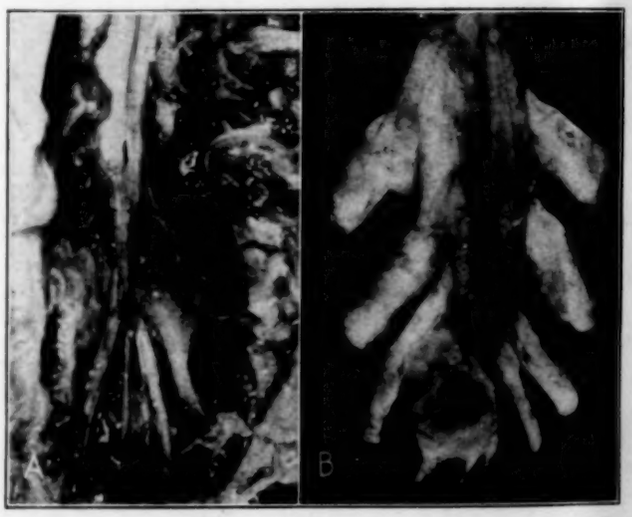


Fig. 1.—*A*, photograph taken at autopsy, showing a cyst (indicated by arrow) occurring on the second sacral nerve root. The cephalad margin of the posterior arch of the sacrum, which covered the cyst completely, is indicated by the broken line. *B*, photograph of a cyst arising from the third sacral nerve root and decidedly compressing the adjacent roots. The appearance of this cyst is essentially identical with that encountered at operation in the case reported. The specimens shown in this figure were obtained at autopsy at the Jewish Hospital of Brooklyn (by permission of Dr. David Grayzel, Department of Pathology).

REPORT OF A CASE

J. L., aged 42, was admitted to the Norwalk General Hospital, Aug. 29, 1947, because of severe pain in the region of her right hip and the posterior aspect of the right thigh, of eight months' duration, associated with a feeling of pressure, warmth and numbness extending from the hip posteriorly to the calf of the right leg during the latter month of her illness. The patient stated that she had been in good health, free from pain, until Christmas day 1946, when she tripped in her home striking her head, the lower part of the back and her hip against the

From the Department of Surgery of the Norwalk General Hospital, Norwalk, Conn.

Read at the meeting of the Harvey Cushing Society at Hot Springs, Va., Nov. 15, 1947.

1. Tarlov, I. M.: Perineurial Cysts of the Spinal Nerve Roots, Arch. Neurol. & Psychiat. **40**: 1067-1074 (Dec.) 1938.

2. Schmorl, G., and Junghanns, H.: Die gesunde und kranke Wirbelsäule im Röntgenbild, Leipzig, Georg Thieme, 1932.

3. Mixter, W. J., and Barr, J. S.: Rupture of the Intervertebral Disc with Involvement of the Spinal Canal, New England J. Med. **211**: 210-215, 1934.

4. Tarlov.[1] This high incidence of cysts encountered at autopsy in my series seems to have been confirmed recently in Sweden by Rexed,[5] who found arachnoidal proliferations and cysts in "8 cases out of 17 examined"—the "material consisted of the lumbar spinal cord with its nerve roots and first stretch of the spinal nerves enclosed in the dural sac." Rexed's statement, ". . . a search through the current literature revealed no description of this condition," overlooks my prior account (1938) of such cysts, which, however, were not associated with arachnoidal proliferations.

5. Rexed, B.: Arachnoidal Proliferations with Cyst Formation in Human Spinal Nerve Roots at Their Entry into the Intervertebral Foramina, J. Neurosurg. **4**: 414-421, 1947.

andirons and hearth of the fireplace. She sustained a bump on her head and a bruise on her right hip and lumbosacral area. She went to bed because of pain in the regions of the bruise, but remained there for only two hours, and after two days she was able to resume her household duties without discomfort. Ten days after the fall slight pain developed in the right hip. This

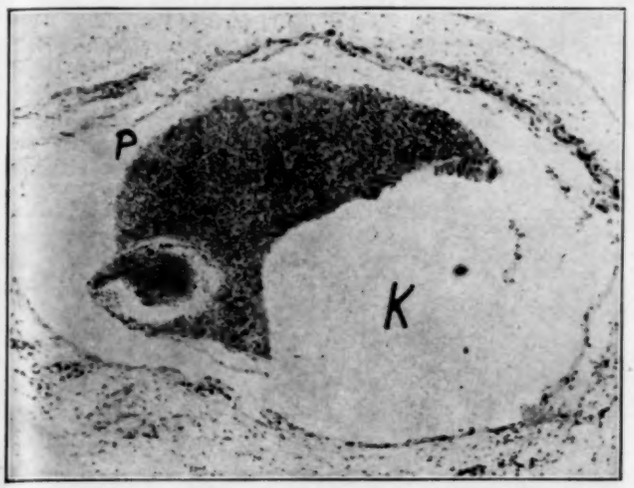


Fig. 2.—Microscopic appearance of a cyst discovered at autopsy and arising from the extradural portion of the posterior sacral nerve root. The cyst (K) may be seen occupying the perineurial space (P) and having excavated a portion of the posterior nerve root (N) (hematoxylin and eosin × about 76).

persisted until the first of February, when the pain became much severer. There was difficulty in getting out of a chair or engaging in any task which required her to bend forward or laterally. The severity of the pain gradually increased, and the patient experienced increasing difficulty in getting out of bed or in assuming any household activity. Early in June the pain began to radiate down the posterior aspect of the right thigh. The pain was relieved to some extent by heat and recumbency, but its severity gradually increased until the first of August, since which time she had been obliged to remain in bed. During the latter month of her illness, on getting out of bed, she experienced a disagreeable sensation of pressure,

Fig. 3.—The cyst may be seen surrounded by nerve root substance (hematoxylin and eosin × about 41).

warmth and numbness extending from the right hip posteriorly to the calf of the leg.

The patient was seen in consultation with her physician, Dr. Robert Patterson, on Aug. 8, 1947. The abnormal observations on examination at that time were: (1) well marked decrease of lumbar lordosis, (2) local pain on firm pressure over the fifth lumbar spinous process, (3) increase of pain along the posterior aspect of the right thigh on hyperextension of the back and also on right lateral flexion of the spine, (4) well marked decrease in power of dorsiflexion and, to a greater extent, of eversion of the right foot, (5) decrease in appreciation of pinprick of the outer aspect of the dorsum of the right foot and ankle and (6) absent right ankle jerk. It was my impression at this time that there was a protruded intervertebral disk, probably lumbosacral. Observations in roentgenograms of the lumbar and sacral aspects of the spine were normal. During the course of the next two weeks the patient suffered intense pain in the right lower limb and, in view of the severity of her discomfort, its duration and the fact that she was completely incapacitated, it was decided to carry out an interlaminar exploration for a herniated intervertebral disk. Myelography was considered unnecesary. It is of interest that when the patient was admitted to the hospital on August 29, for operation the next day, the observations were the same as aforementioned except that there was practically no pain on either hyperextension or lateral flexion of the spine. This fact tended to cast some doubt on the diagnosis of a herniated intervertebral disk, although operation was still clearly indicated.

Operative Procedure and Observations (August 30).—With the patient in the lateral recumbent position, right side uppermost, and under spinal anesthesia, later supplemented with

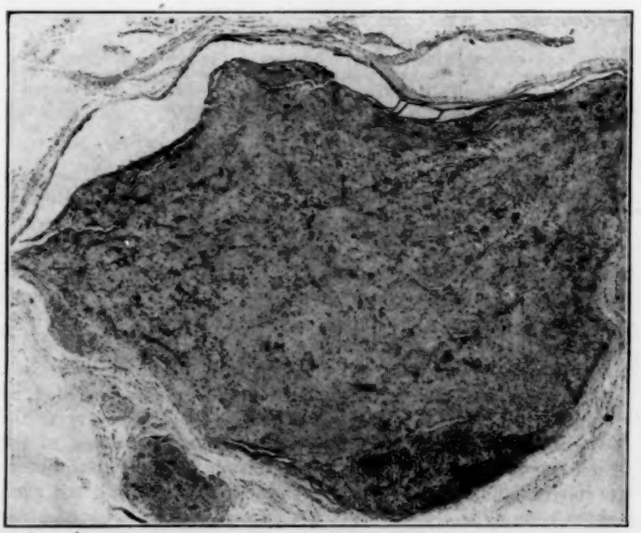


Fig. 4.—The cyst also occupied a portion of the perineurial space of the dorsal ganglion (hematoxylin and eosin × about 32).

intravenous injection of "pentothal sodium" (sodium 5 ethyl-5-[1-methylbutyl] thiobarbiturate), an incision was made just to the right of the middle exposing the spines of the fifth lumbar and first sacral segments. The soft tissue was separated from the spinous processes and laminas of these spines on the right side, and a hemilaminectomy retractor was introduced. The ligamentum flavum between the fifth lumbar and first sacral segments was removed, and the nerve root was clearly exposed. The root was in normal position and presented no abnormality whatever. The underlying intervertebral disk appeared normal. There was no bulge at all, but palpation of the lateral border of the disk revealed decreased resistance, and incision of the posterior longitudinal ligament and posterior part of the disk capsule enabled the forceps to enter the intervertebral disk for a distance of about 1 cm., with little force being applied to it. It was concluded that the disk presented a slight abnormality with respect to its decreased consistency, but could not possibly account for the clinical picture presented by the patient. There was not the slightest adherence between root and disk. The intervertebral disk and nerve root between the fourth and fifth lumbar segments were then explored, clearly exposed and observed to present no abnormality. The lower interspace was then reexamined, and it was observed that the epidural fat was being extruded from under the sacrum. As this fat was removed, a well marked bulge presented itself from

under the posterior arch of the sacrum, just lateral to the margin of the thecal sac and medial to the nerve root (fig. 6). It was clear at this point that there was an abnormality under the posterior arch of the sacrum on the right side. Accordingly, removal of this portion of the arch was begun, and, as this was

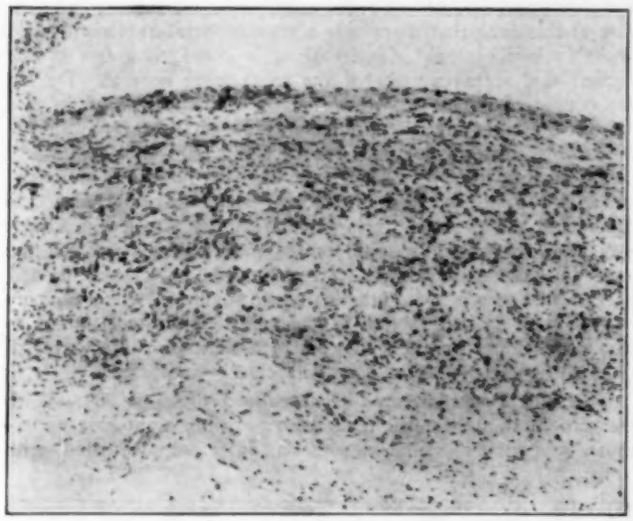


Fig. 5.—Nerve cells and other substance of the dorsal ganglion which formed a portion of the cyst wall (hematoxylin and eosin × about 80). (There is more detailed photographic depiction of the cysts shown in this figure and in figures 2, 3 and 4 in a previous description of this condition.[1])

being accomplished, more and more of the lesion was brought into view. Finally, after removal of about 3 cm. of the posterior arch of the sacrum on the right side, full view of the cystic mass was effected. The lesion was present along the course of the second sacral root, which was enlarged in a fusiform manner. The tumor measured approximately 2 cm. in length and over 1 cm. in width, being about three times the width of the posterior root. It presented a reddish surface and was soft and fluctuant. Several large veins ran laterally along its course. The head of the table was elevated and then lowered, and no change in size of the cystic mass followed. Moreover, as the thecal sac was compressed, again no change in the size of the lesion occurred. Compression of the lesion itself did not obliterate its contents. It was then possible to conclude that the mass did not communicate with the subarachnoid space. A hypodermic needle attached to a syringe was introduced into the lesion, and an

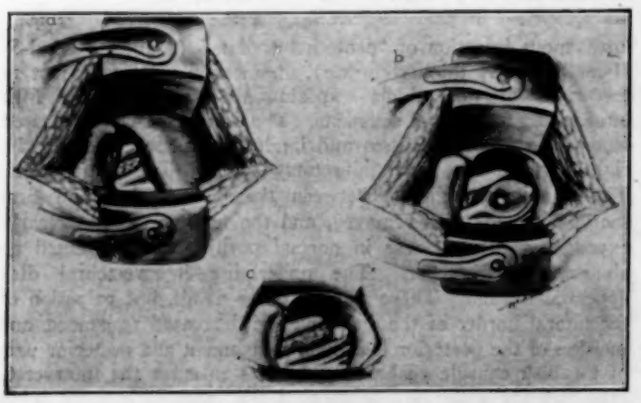


Fig. 6.—Sketches showing (*a* and *b*) appearance of cyst at operation and (*c*) the nerve root after removal of the cyst. In *a* the bulge of the cyst through the border of the sacrum was seen only after removal of the epidural fat in this region. Full view of the cyst arising from the posterior root of the second sacral nerve at its junction with the ganglion is seen in *b* after removal of a portion of the posterior arch of the sacrum. In *c* one sees the intact anterior root after removal of the cyst and corresponding segment of the posterior nerve root and dorsal ganglion.

attempt was made to aspirate its contents. Only a few drops of fluid, pinkish as a result of admixture with blood and too little for analysis, was obtained, and the size of the mass did not diminish appreciably after the attempted aspiration. An incision was then made into the lesion and a portion of it excised. As this was done a decided decrease in the size of the remainder of the mass followed, as though escape of fluid contents through multiple small openings occurred. By means of a nerve hook it could be determined that the anterior nerve root was distinct from the fusiform mass which had clearly involved the dorsal root ganglion and approximately 1 cm. of the proximal portion of the nerve root. The entire lesion, including all but the distal end of the posterior ganglion at the point of its junction with the anterior root, was excised. There was no escape of cerebrospinal fluid during the procedure. The little bleeding that occurred was controlled by electrocautery and pieces of crushed muscle. The muscle was closed in two layers, the fascia in one layer, the subcutaneous

Fig. 7.—The cyst may be seen occupying the perineurial space (P) (hematoxylin and eosin × about 39).

Fig. 8.—Photomicrograph of a portion of the cyst removed at operation, showing communication between the perineurial space and the main cavity of the cyst (K) (hematoxylin and eosin × about 28).

tissue separately, and the cutaneous edges were also approximated with interrupted silk sutures. The patient's condition remained good throughout the procedure.

The patient made an uneventful convalescence from the operation. There was no difficulty in voiding or in the control of her bowels. The day after operation she was free from her previous lower limb pain, and there was a decided increase of power of the foot as well as in the appreciation of pinprick. Improvement continued, and on the seventh postoperative day, when the patient was allowed out of bed, power and sensation of the foot were entirely normal. The sutures were removed from the wound, which was well healed, at this time. The patient was discharged from the hospital on the eleventh postoperative day without any complaints and feeling happy with the result of the operation. She was last seen two months after operation, at which time she was carrying on with her

full household duties. She complained of occasional mild darting pain of momentary duration in the posterior aspect of the right thigh, at the junction of the middle and lower thirds. At this site pinprick was associated with a somewhat diffuse "pins and needles" sensation. Otherwise examination revealed no abnormalities except for persistence of the absent right ankle jerk. The patient did not feel handicapped in any way.

The tissue removed at operation was fixed in 10 per cent formaldehyde and imbedded in paraffin. The following technics were then carried out on the sections: hematoxylin and eosin stain, Laidlaw's lithium silver carbonate impregnations for reticulin and collagen fibers; Gros-Bielschowski technic for axis cylinders, Spielmeyer's stain for myelin sheaths and cresyl violet preparations for ganglion cells.

Microscopic examination of serial sections of the various portions of the tissue removed at operation afforded the opportunity of reconstructing an accurate histologic picture of the lesion, which was a multiloculated cystic one (figs. 7, 8, 9, 10 and 11). The cyst occupied the posterior root abutting the proximal portion of the dorsal ganglion. Its main part was bordered by reticulin or by nerve fibers, some of which showed vacuolization, swelling and fragmentation of axis cylinders and myelin sheaths in Gros-Bielschowski and Weigert-Pal preparations, respectively. The degenerative changes affecting the

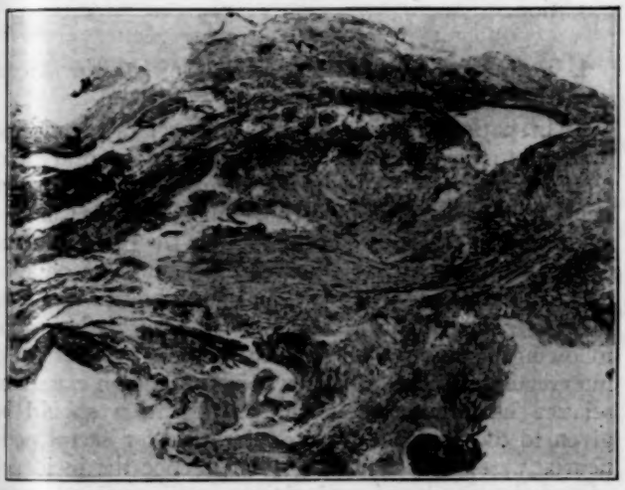


Fig. 9.—Smaller cystic spaces, resulting probably from rarefaction or a liquefactive type of degenerative change occurring in the posterior root, such as is also seen in figure 11 (hematoxylin and eosin × about 25).

nerve fibers were not widespread in the intact portions of the nerve root and occurred chiefly in certain regions of the wall of the cyst. Few of the ganglion cells adjacent to the cyst showed signs of chromatolysis consisting of pulverization and disappearance of Nissl's substance with migration of nuclei to a peripheral position, but most of the nerve cells appeared normal in cresyl violet stains. The cystic cavity communicated with the perineurial space and, in some regions, had caused considerable thinning of the overlying dural prolongation, the epineurium. Several miniature cysts were seen, occurring either as local dilatations within the perineurial space or as areas of fragmentation and rarefaction (figs. 9 and 11) within the parenchyma of the posterior root. There was no demonstrable communication between these various cysts. In a few areas bordering the cysts there were small accumulations of monocytes and lymphocytes, but this was not a prominent feature of the tissue and there was no evidence of recent or old hemorrhage or of neoplasm. No proliferative changes of the arachnoid or other tissues were present.

COMMENT

There is no doubt that the patient's symptoms and signs were the result of the cyst which occurred along the extradural portion of the second sacral posterior nerve root, the lesion having compressed the neighboring roots. At operation a protruded intervertebral disk was not found. That the cyst was in position to have caused compression was shown by the fact that as the epidural fat just under the sacrum was removed a bulge of the cyst became apparent. More and more of this bulge appeared as the posterior sacral arch was

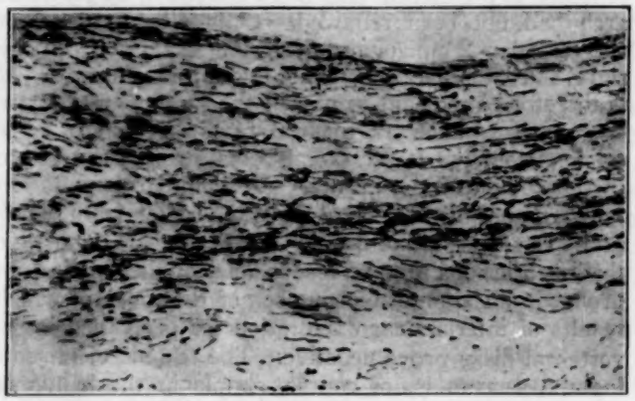


Fig. 10.—Axis cylinders occupying the wall of the cyst. Some of the axones have undergone swelling and fragmentation as a result probably of compression by the cyst (Gros-Bielschowski technic for axis cylinders × about 89).

removed bit by bit. The causal relationship between cyst and syndrome appears to have been confirmed by the postoperative course of the patient, whose sciatic pain, as well as motor and sensory abnormalities, almost entirely disappeared twenty-four hours after operation and were hardly demonstrable one week later. Although the presence of the cyst on the second sacral nerve root as well as the compression of the surrounding nerve roots may have accounted for the patient's severe pain, the motor and sensory signs must have been the result almost entirely of nerve root compression, since they vanished so quickly following operation. The fact that no sensory loss, but only a small area of paresthesia, could be observed following complete interruption of the second sacral posterior nerve root is in keeping with the conception of overlap of sensory dermatomes

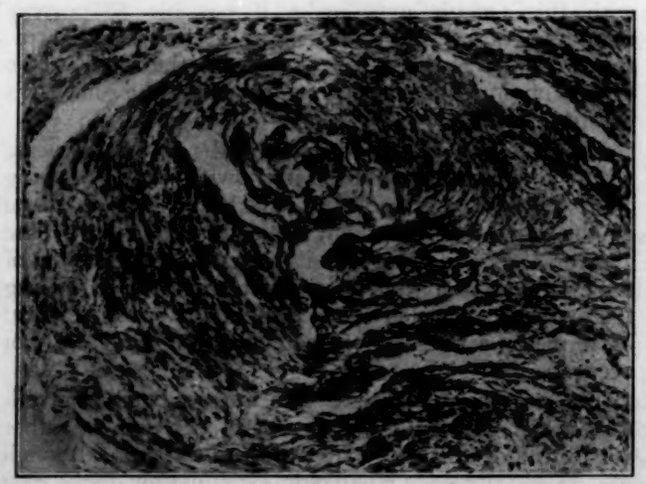


Fig. 11.—Photomicrograph showing degenerative change occurring in the posterior root (hematoxylin and eosin × about 73).

as demonstrated in animals by Sherrington and by Foerster [6] in human beings; this experience does not lend support to Keegan's [7] denial of such overlap.

6. Foerster, O.: The Dermatomes in Man, Brain **56**: 1-39, 1933.
7. Keegan, J.: Dermatome Hypalgesia Associated with Herniation of Intervertebral Disc, Arch. Neurol. & Psychiat. **50**: 67-83 (July) 1943.

It is significant that the cyst was not seen while exploration of the lumbosacral interspace for herniated disk was being carried out, although the first sacral nerve root was clearly exposed. The presence of the cyst might have been overlooked if the epidural fat just cephalad to the sacrum and under the rim of its posterior arch had not been removed. Only after removal of the cephalad 2 cm. of the posterior sacral arch on the right side was the lesion exposed in its entirety. It is therefore important to unroof the sacrum in order to determine whether perineurial cysts, especially those arising from the lower sacral roots, are present, since in the course of the ordinary interlaminar exploration for herniated intervertebral disks the region from which such cysts arise is not brought into view. It is possible that such lesions may be responsible for the sciatic syndrome in an appreciable number of the cases in which results of interlaminar exploration for protruded intervertebral disks prove negative. The technic of unroofing the sacrum is, of course, simple in the hands of competent surgeons and does not result in any weakening effect on the spinal column.

In the case reported the syndrome of sciatic nerve root compression appeared clearcut, so that myelography was unnecessary. If a myelogram with ethyl iodophenylundecylate had been done, it is unlikely that there would have been any apparent defect, since the cyst occupied a position 1 cm. or more distal to the origin of the nerve root from the thecal sac and it was not in continuity with the subarachnoid space. Unless the cysts attain a very large size, so that compression of the thecal sac or deformation of the short segment of arachnoid prolongation over the nerve root occurs, myelography would be of no value in establishing the diagnosis. However, I have had some experience recently with extradural myelograms, carried out after the injection of ethyl idiophenylundecylate ("pantopaque") into the lumbosacral epidural space. In some of these cases it has been possible to outline the lumbar and sacral nerve roots. It is possible that further experience with this technic may make it possible to portray roentgenographically perineurial cysts and other intraspinal lesions which arise from outside the limits of the subarachnoid space and thus establish the diagnosis before operation.

That the contents of the cyst did not communicate with the subarachnoid space is shown by the following observations: First, elevation and lowering of the head of the operating table did not alter the size of the cyst or the tension within it; second, compression of the cyst did not obliterate its contents, and, third, during the process of incision of the cyst and complete removal of it piecemeal, escape of cerebrospinal fluid did not occur.

The trauma which the patient sustained approximately ten days before the onset of her pain is rather suggestive of a causal relationship to the cyst, although not necessarily so. Histologic examination of the cyst showed no evidence of recent or old hemorrhage, which, if present, might have favored a traumatic origin. The cyst proved to be of the same histologic structure as the cysts encountered at autopsy.[1] They were not neoplastic, parasitic or dermoid, and there was no striking evidence of an inflammatory origin. The areas of rarefaction within the nerve root indicate a possible degenerative genesis. This possibility is supported by chemical examination of the cyst contents in a case encountered at autopsy. The total protein content of the cyst fluid was that of normal cerebrospinal fluid, but the potassium content was 62.5 mg. per hundred cubic centimeters, over four times that of normal cerebrospinal fluid.[8] This observation suggests degenerative changes affecting cells, which contain large quantities of potassium.[9] It should be stated that microscopic examination of the cyst fluid revealed no cellular elements within it. Whether similar cysts occur at higher levels is uncertain, since the autopsies [1] did not include examination of the dorsal ganglions of the entire spinal axis. Such a study, however, is now under way.

The exact incidence of perineurial cyst as a cause of sciatic or other nerve root pain remains to be determined. However, in view of my experience in autopsies in which such cysts were seen in 5 out of a total of 30 cases in which the spinal cord was examined, the clinical encounter of perineurial cysts may prove to be far from rare, if sought for. It is possible that, as clinical experience with this lesion accumulates, certain symptomatologic features or physical observations may emerge as leads in the preoperative diagnosis of this condition.

CONCLUSIONS

1. Perineurial cysts arising from the posterior sacral nerve roots can produce the sciatic syndrome.

2. In patients suffering from the sciatic syndrome thought to be due to a herniated intervertebral disk, requiring operation and in whom interlaminar exploration fails to reveal a protruded disk or other abnormality sufficient to have accounted for the pain, removal of the posterior arch of the sacrum should be done in order to determine whether a perineurial cyst is present. Moreover, in patients with persistent severe sciatic pain following negative results of explorations for herniated intervertebral disks, and in whom the known causes of sciatica have been excluded, consideration should be given to the advisability of exploration for sacral perineurial cysts. By following this practice the incidence of negative results of explorations in the surgical treatment of sciatica will probably be reduced.

1249 Fifth Avenue (29).

8. Dr. Albert Sobel and Dr. Samuel Natelson, Department of Laboratories, Jewish Hospital of Brooklyn, made the chemical analysis of the cyst fluid and assisted in the interpretation of these data.

9. Muntwyler, E., and Mantz, F.: Electrolyte and Water Equilibria in the Body, in Glasser, O.: Medical Physics, Chicago, The Year Book Publishers, Inc., 1944, pp. 371-376.

Second Era of Research in Chemotherapy.—During the past dozen years we have all witnessed the impact on medicine of what Sir Henry Dale has called the second era of research in chemotherapy, as manifested practically in the unparalleled usefulness of the sulfonamides, penicillin, and the newer antimicrobic drugs, and theoretically in the impetus which their discovery has given to new thought and experimentation on the metabolism of parasitic cells, the mechanisms of drugfastness, and the general principles of chemotherapy. Great as these achievements are, they were exceeded, in my opinion, by the attainments of bacteriology in the final quarter of the 19th century. For in that remarkable efflorescence, the genius of Pasteur, the logic of Koch, and the percipience of Lister permeated medicine with incredible rapidity, the immediate consequence being that a host of diseases which had puzzled and plagued mankind for centuries abruptly yielded their causes, and often their cures in addition, as fruits of the new science, while a vastly more important outcome was the fact that man had at long last identified and begun to study the bacterial creatures with which he lives.—Kidd, John G., *Bulletin of the Johns Hopkins Hospital*, June 1948.

GENERAL PRACTITIONERS SESSION

THE CHRONIC INVALID

EDWARD L. BORTZ, M.D.
President, American Medical Association
Cleveland

PREVALENCE

The patient with chronic illness is one of the major challenges to modern society. Sooner or later some form of long term illness affects one or more members in most families of the nation. A conservative estimate suggests that more than one sixth of the population—some 25,000,000 persons—are afflicted with some chronic disease.[1] Approximately 2,000,000 of our population are chronic invalids at the present time, and the number is steadily increasing. It will increase still more as the control of other disorders which were so devastating heretofore is now being more effectively managed. The mortality rates from acute infections, nutritional deficiencies, glandular abnormalities, are falling. Many patients afflicted with cancer are being cured because of earlier diagnosis and complete eradication.

A report from New York State estimates that 7 out of every 10 deaths are due to some chronic illness. And while in 1900 chronic disease was the cause of 26 per cent of all deaths in New York, in 1940 almost 70 per cent of the fatalities resulted from prolonged illness. No age is immune. Some 40 per cent of the patients suffering from chronic illness are under 45 years of age, and in patients between 25 and 64 years of age, 60 per cent of the reported cases of long term illness are found. Chronic illness is also found among children, adolescents and those in the young adult years.

The extent of this problem is expanding. Inadequate persons, such as persons with mongolism and other unfortunates, formerly were frequently removed by a severe infection or some nutritional discrepancy. Now the control of these maladies is carrying over larger numbers of persons who are charges on society. The strain on family budgets and household organization is mounting. It therefore becomes necessary for planning on a much broader scale to meet the challenge of chronic invalidism.

The need for comprehensive planning to meet the challenge of chronic disease must be emphasized. While the economic and social aspects are of vital importance, the highlights in the problem of the chronic invalid are prevention, management and research. Since each year approximately 1,000,000 deaths are due to chronic illness and a billion days are lost from productive activity, it is high time that concerted action on a broad plane be directed to counteract this huge loss to our social existence.

As more persons are living longer, there is more opportunity for chronic illness to develop. To this extent aging of the population may be regarded as a contributory factor. However, it should be kept in mind that aging and chronic invalidism are not synonymous by any means. The misconception that old age is constantly visited by chronic invalidism must be dispelled. Many persons now have a vigorous and enjoyable senectitude free of prolonged illness.

Long term illness is one of the principal causes of economic hardship. The presence of a chronically ill patient in the family frequently alters the psychologic atmosphere within the home. When an attitude of defeatism is adopted by the patient and those around him, the outlook is likely to be hopeless.

THE MAJOR CHRONIC ILLNESSES

The major chronic illnesses are as follows: cardiovascular disorders, including arteriosclerosis, apoplectic stroke, rheumatic heart disease and syphilitic heart disease; the arthritic and rheumatic disturbances; mental diseases; advanced cancer; tuberculosis; diabetes; gastrointestinal disturbances of organic or functional origin; disorders of the genitourinary tract; the allergic states, and chronic alcoholism. Some 4,000,000 invalids are suffering from chronic heart disease. Vital statistics indicate that approximately 600,000 lives are lost each year as a result of a breakdown of the cardiovascular system in the form of cerebral hemorrhage, coronary occlusion or chronic heart failure. It has been estimated that approximately 10 per cent of all chronic disease cases fall into the group of cardiovascular disorders.

Arthritic and rheumatic disorders stand second on the list of the most common disabling afflictions—the exact number of invalids suffering from arthritis is not known. Available statistics are not satisfactory. This is because of the variation in terms and lack of exactness in diagnosis. There is a great need today for statewide surveys which will give a clear picture of the magnitude of the problem of chronic disease. With arthritic and rheumatic disorders, for instance, it is important to know the number of patients suffering from degenerative joint lesions, those suffering from acute infectious arthritis and the number in which a metabolic abnormality, such as gout, is the underlying factor. To know the extent of the problem is the first essential in a program of combating the ravages.

According to a recent summary[2] there are 641,331 beds for general hospital cases with an average census of 496,527. There are 674,930 beds for cases of nervous and mental disease with an average census of 635,769. With the use of shock therapy for certain types of mental illness the number of admissions to hospitals is increasing, while, at the same time, the length of stay is being reduced.[3]

This year approximately 180,000 lives will be lost because of cancer. It may be conservatively estimated that 75 per cent of these patients are bedridden or otherwise incapacitated to such an extent as to be classified as chronic invalids.

With the superb work of various organizations interested in the control of tuberculosis, the death rate is decreasing in those areas where modern health measures have been instituted for its control. According to statistics from the National Office of Vital Statistics; in 1945 there were 52,916 deaths—a ratio of 40.1; in 1944 there were 54,731 deaths—a ratio of 41.3, while in 1943 there were 57,005 deaths—a ratio of 42.6. It is unfortunate that there is no uniform method for reporting cases of tuberculosis. While there are not any accurate data on the total number of persons suffering from tuberculosis, various authorities have

Read at the interim meeting of the American Medical Association, Cleveland, Jan. 8, 1948.

1. Planning for the Chronically Ill., J. A. M. A. **135**: 343 (Oct. 11) 1947.

2. Arestad, F. H., and Westmoreland, M. G.: Hospital Service in the United States, J. A. M. A. **133**: 1065 (April 12) 1947.

3. Smith, L. H.: Personal communication to the author, Sept. 25, 1947.

estimated that at the present time there are approximately 1,500,000 patients. It should also be stated that tuberculosis is still the captain of the men of death in areas where modern control measures are not utilized.

While diabetes is listed as a chronic disease, and there are probably 2,000,000 persons with diabetes in the country at the present time, few of these are invalids. Modern control measures have greatly improved the status of the diabetic patient.

The high pressure of social existence at the present time is reflecting itself in the large number of persons suffering from some form of gastrointestinal disorder—the most frequent being peptic ulcer or colitis. Grouped with disorders of the gastrointestinal tract may be those conditions of chronic involvement of the biliary tract. Here, too, persons ofttimes are not sick and not well, but become chronic sufferers because of low grade efficiency.

With increasing years approximately 50 per cent of the male population becomes afflicted with prostatic hypertrophy. As the cardiovascular system becomes sclerotic prostatic lesions may be more pronounced.

It is estimated that 1.5 to 2 per cent of the population are chronic sufferers from some allergic condition, although they may not be incapacitated for long periods of time.

Chronic alcoholism must be regarded as a menace to the public health. Its devastations carry far beyond the destructive effects on the individual patient. A condition which has destroyed so many brilliant careers, disrupted so many homes and caused as much unhappiness as chronic alcoholism must be regarded as an important problem in the realm of chronic illness. The periodicity of bouts merely emphasizes the chronicity of the condition. While no accurate statistics are available, it has been estimated that there are 75,000 alcoholic addicts in the United States.[4] Although the alcoholic addict frequently is a social problem with the legal aspect, basically the condition is medical and needs concentrated study, the same as other chronic medical disorders. The National Committee for Education on Alcoholism and the organization known as Alcoholics Anonymous have rendered outstanding public service in emphasizing the need for rehabilitation of the problem drinker.

SOCIAL FACTORS

Long term illness produces an added burden on the patient's family. It adds one more problem case to the social agencies who exist for the purpose of neutralizing adverse social influences. If the invalid is the wage earner, the family's economic predicament becomes immediately acute, and economic dependency on society may result.

According to the National Health Survey,[5] chronic illness occurs most frequently in families with relatively limited financial resources. The rate of chronic illness found in families on relief in 1937 was about double that for families with incomes of $2,000 to $3,000 per year. The New York State Health Preparedness Commission in 1944 found in their investigation that some 37 per cent of persons receiving old age assistance were afflicted with some form of chronic illness, just double the average for their age group. As pointed out by Howard Rusk,[6] long term illness depletes earning power at a time when the patients are called on to pay more for their care than those who are suffering from an acute illness. An important additional burden is the common tendency on the part of the invalid to become a permanent dependent. Psychologic factors, such as boredom, lack of initiative to improve one's status and the acceptance on the part of relatives that the condition cannot be bettered, are some of the chief obstacles which must be removed if the chronic invalid is to be rehabilitated. Too many patients accept their illness with resignation and appear to be willing to become charges on society. A rehabilitation program has much to offer these persons.

DEFEATISM AND FEAR

Although chronic illness may occur in any age group, it is likely to be more devastating for older persons in society. Rusk[6] has emphasized the fear of chronic disease and disability as the most haunting spector of increasing age. In 1936 the National Health Survey indicated that 58 per cent of all persons 65 years and over suffer from some form of chronic illness or physical disability. It should be emphasized that there are many persons with some physical infirmity who are useful and productive members of society. It has frequently been pointed out that some form of chronic illness may teach persons the advisability of living a restricted existence, thereby enabling them to live out their normal life span. A psychologic atmosphere of defeatism and fear of the future is a major detrimental influence in perpetuating chronic illness. Greater attention to the patient's attitude and the creation of a buoyant and hopeful atmosphere are the first step in a sound rehabilitation program.

INSTITUTIONAL CARE

Persons with acute illness, particularly those due to the common infections, nutritional deficiencies and glandular disorders, are no longer in need of hospital care. A larger percentage of patients with chronic illnesses are now occupying hospital beds. Even so, because of the increase in the number as more persons grow into the later years, there is an acute shortage of beds for patients suffering from long term illness. It has been determined that 2 beds per thousand of the population are necessary for these patients. Few communities are equipped at the present time to care adequately for the number of patients who are chronic invalids.

It is generally agreed that the majority of these patients can best be cared for in the home or ambulatory clinic. Professional assistance from visiting nurse societies has been an invaluable aid in caring for chronically ill patients in their own homes. Here, too, demands are steadily increasing, and the estimated minimum of 1 nurse per two thousand of the population to participate in the nursing activities for chronic invalids is far short of the required optimum.[7] Since there is such a drastic shortage of professional nurses, wider use should be made of practical nurses and nurses' aides working under the supervison of the public health nurse. These aides should be able to perform the less specialized procedures under the supervision of a professionally trained nurse.

The hospital care for long term illnesses needs to be geared to their particular requirements. It has already

4. State Commission Studies Alcoholism, Pennsylvania's Health, Department of Health, Commonwealth of Pennsylvania, October-December 1947.
5. National Health Survey, Bulletin 6.
6. Rusk, H.: New York Times, May 25, 1947.
7. Haupt, A. C.: National Unity in Public Health Nursing, Public Health Nursing 37:3 (Jan.) 1945.

been pointed out that the tendency to establish hospitals for chronic disease in areas remote from medical centers is unfortunate.[1] Stagnation is too likely to occur when patients are relegated to an institution where custodial care too often exists in the absence of an aggressive medical program for improving the patients' chances for rehabilitation. Therefore it is an established principle that, wherever possible, special departments in general hospitals should be created for the care of persons suffering from long term disease.

Where invalidism is likely to be permanent and progressive, nursing homes, either public or private, are the answer. Here again there is a dearth of facilities. In all of the metropolitan areas of the nation the need for more nursing homes is evident.

PREVENTION AND PROPHYLAXIS

Energetic and well organized programs for control have brought about a substantial reduction in the mortality rate of pneumonia, typhoid, smallpox, diphtheria and scarlet fever. Public education in reference to venereal disease should greatly limit the ravages of this prevalent nuisance. The early detection of cancerous growths, when these are localized and if they are completely eradicated, will substantially reduce the mortality rate from cancer. Here again, the need for cooperation on the part of all agencies interested in health is a basic essential. If health is the nation's greatest asset, a positive health program with regular health surveys should be set up as part of the school systems of the country. Industry and labor have an excellent opportunity to play a dominant role by establishing health surveys of all employees. The major industries and the school systems of the nation together, in collaboration with medical authorities, should create a program for positive health which, among other benefits, should be able to uncover incipient lesions at a time when their eradication is possible.

Hospitals should, in reality, become health and diagnostic centers where practicing physicians might refer their ambulatory patients for diagnostic surveys in all problem cases. In the past, the practice of limiting hospital services to bed patients was not in the spirit of early diagnosis and prophylactic services. The point of view needs be changed from that of curative to that of preventive and prophylactic medicine in the field of health. Health rather than sickness should be stressed.

In a health educational program, as persons learn their vulnerable points and tend to reinforce themselves against possible breakdown, chronic illness may less likely occur. In the last analysis, each person is responsible for his own well-being. He should make an appraisal of his physical assets and know his liabilities, and plan accordingly for the future.

TOMORROW'S HEALTH

Our health tomorrow depends on our researches of today. The next substantial increase in the life span will occur when the two great killers, vascular degeneration and cancer, are brought under control. These maladies destroy three quarters of a million citizens every year. Unless measures for control are developed, as folks grow into the vulnerable years, this number will increase. What can be done about it?

The great need is a clearer understanding of the progression of events occurring in the blood vessels and cells of the body, which appear as blood vessels deteriorate and as cells lose their objectivity and become cancerous. New tools of the greatest significance are now available for accurate examination of the steps by which normal tissues deteriorate and either break down or become cancerous. With the use of radioactive isotopes, which serve as neon lights, information of great practical value should be made available concerning the basic causes of vascular degeneration and cancer. As tagged atoms of carbon, calcium, iron, phosphorus, sulfur and the others are followed through the body, the intermediary metabolism of the various food stuffs should be clarified. Earliest deviations from the normal will be identified, and a better understanding of the pathologic physiology should ultimately lead to effective measures of control. Here, as I see it, is the great opportunity for modern science.

As the physical disorders—the major killers—are being subjected to critical study, the need for research in the field of psychiatric and psychosomatic afflictions is evident. The technics that lead to new insight into the processes of physical breakdown should give us more knowledge of our mental processes. We are facing a new day in the realm of medical science. Medicine has much to offer a world which is suffering from insecurity and which longs for peace of mind. A more vigorous and a more healthy population, steadily waging a successful battle for the control of the devastating diseases which afflict our fellow men, should be well equipped to study ways and means for bringing about a more stable social order.

Clinical Notes, Suggestions and New Instruments

PROLONGATION OF ACTION OF HEPARIN

JEFFERSON J. VORZIMER, M.D.
LEON N. SUSSMAN, M.D.
and
MAXWELL J. MARDER, M.D.
New York

An ideal anticoagulant should be easy to administer, have a prolonged action and be free of harmful side effects. It should be relatively inexpensive and should not require frequent laboratory control for its safe administration. Neither heparin nor "dicumarol," as now commonly used, satisfies these requirements. Heparin [1] has well known pharmacologic advantages over "dicumarol," but the necessity of repeated intravenous injection plus its high cost have acted as a deterrent to its common use. "Dicumarol" [2] necessitates daily venipuncture and repeated prothrombin determinations, and it is difficult to control its action because of the fluctuation in its effects. Search for a more ideal anticoagulant has resulted in various preparations of heparin, all of which attempt to facilitate its administration. Thus Loewe and his co-workers [3] used Pitkin's menstruum as a vehicle for subcutaneous use of heparin, and Stats and Neuhof [4] injected intramuscularly a concentrated aqueous solution of heparin.

During the past year we have been studying the effects of the administration of heparin in various menstruums calculated to prolong the anticoagulant action of the drug. After many

Aided by a grant from Mr. Jack Beeber.
From the Medical Service of Beth Israel Hospital, New York.
1. Jorpes, J. E.: Ann. Int. Med. 27: 361, 1927.
2. Allen, E. V.; Hines, E. A.; Evale, W. F., and Barker, N. W.: Ann. Int. Med. 27: 371, 1947.
3. Loewe, L.; Rosenblatt, P., and Hirsch, E.: Venous Thromboembolic Disease, J. A. M. A. 130: 386 (Feb. 16) 1946.
4. Stats, D., and Neuhof, H.: Am. J. M. Sc. 214: 159, 1947.

experiments in which the amount and concentration of heparin were varied, with different kinds and quantities of menstruums, we were able to obtain prolongation of the coagulation time [5] to from 200 to 900 per cent of normal for seventeen to twenty-four hours with a single intramuscular injection of heparin.

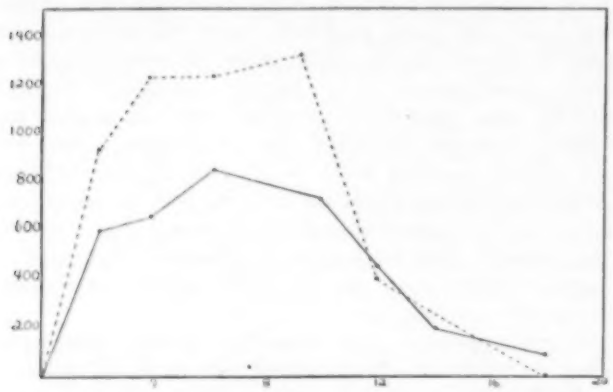


Fig. 1.—Graph of coagulation time (percentage of normal, vertical column of figures) in 2 cases (one represented by the broken line and the other by the unbroken line), showing the effect of administration of 200 mg. of heparin in 1 cc. of aqueous solution emulsified in 1 cc. of menstruum. The horizontal row of figures shows the number of hours after the injection.

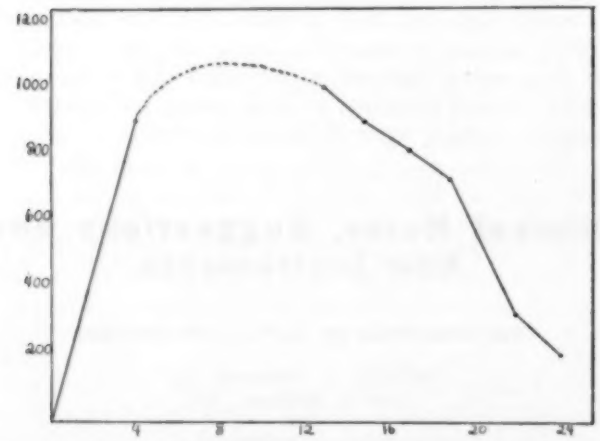


Fig. 2.—Effect of the administration of 300 mg. of heparin emulsified in 1 cc. of menstruum. The vertical column of figures shows the coagulation time in percentage of normal, and the horizontal row of figures indicates the number of hours after the injection.

Data for Eleven Subjects

Patient	Weight (Lb.)	Heparin Dose (Mg.)	Coagulation Time, Percentage Above Normal at Peak	Duration of Therapeutic Effect* (Hr.)
1	135	200	1000	16
2	107	200	900	17
3	126	200	1400	17
4	106	300	800	17
5	140	300	600	17
6	109	300	400	19
7	115	300	900	24
8	120	300	700	15
9	103	300	1100	20
10	134	300	500	18
11	115	300	1400	20

* Two hundred per cent of normal.

This simplification of heparin administration was effected by the use of concentrated heparin [6] (200 mg. per cubic centimeter of aqueous solution) emulsified in 1 cc. of a mixture of cholesterol derivatives (35 per cent), peanut oil (65 per cent) and beeswax (2 per cent). It was observed that approximately 1.5 to 2 mg. of heparin per pound of body weight was necessary to maintain this effect. If the volume of menstruum and the volume of heparin solution were kept equal, the sustained action of the heparin could be assured. There was no hemorrhage at the site of injection, and pain was negligible. Despite prolongation of the coagulation time to from 600 to 900 per cent of normal, in 1 case to 1,400 per cent of normal, no bleeding occurred. The injection had no toxic effects. Controls, illustrated in figure 4, demonstrated that the menstruum alone had no effect on coagulation time, whereas the injection of 1 cc. of aqueous solution of 200 mg. of heparin produced an increase in the coagulation time of only six hours' duration.

5. Coagulation time determination was by the Lee-White three tube method.

6. Heparin was supplied by The Upjohn Company.

SUMMARY

The anticoagulant effect of heparin was prolonged by incorporation of this substance in various menstruums. A concentration of 200 to 300 mg. per cubic centimeter of aqueous heparin solution emulsified in an equal quantity of menstruum composed of cholesterol derivatives (35 per cent), peanut oil (65 per cent) and beeswax (2 per cent) gave the most satisfactory prolongation of the coagulation time. With this technic the coagulation time of the blood was prolonged from 200 to 900 per cent of normal for a period of seventeen to twenty-four hours after a single intramuscular injection. The dosage of heparin varied with the weight of the patient, approximately 1.25 to 2 mg. per pound of body weight being required. Further experiments involving the use of vasoconstrictors and other menstruums are being conducted.

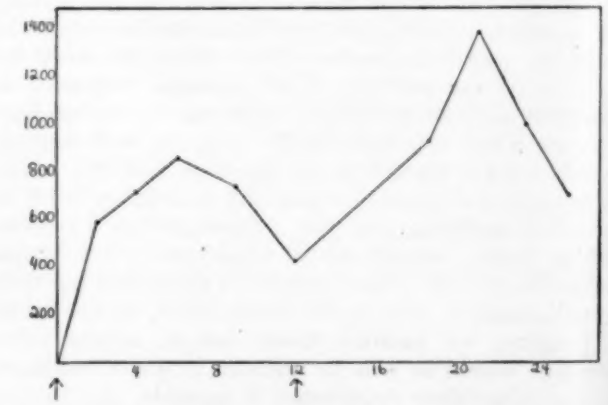


Fig. 3.—Effect of the administration of two injections of 200 mg. of heparin in 1 cc. of menstruum at twelve hour intervals. The vertical column of figures shows the coagulation time in percentage of normal, and the horizontal row shows the number of hours after the injection. The injections were given at the time indicated by the arrows.

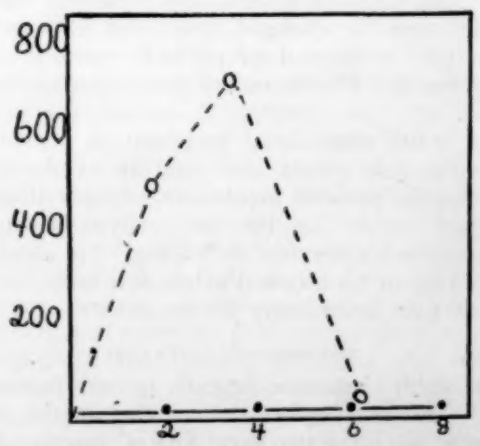


Fig. 4.—Graph of results in controls. Effect of the intramuscular injection of 200 mg. of heparin in 1 cc. of aqueous solution with no menstruum (broken line with circles) and the effect of intramuscular injection of 1 cc. of menstruum alone (broken line with dots).

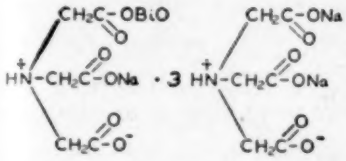
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

BISMUTH SODIUM TRIGLYCOLLAMATE.—Bistrimate-C. D. Smith.—A double salt of bismuthyl sodium triglycollamate and disodium triglycollamate containing approximately 18.3 per cent of bismuth.—$C_{24}H_{39}O_{28}N_4BiNa_7$.—F. W. 1142. The structural formula of bismuth sodium triglycollamate may be represented as follows:



Actions and Uses.—Bismuth sodium triglycollamate is designed to provide bismuth in a form effective for oral administration in the treatment of syphilis. It may be used as an adjunct with arsenicals or other agents shown to be effective in the treatment of the disease. It may be used alone in the management of certain forms of the disease, but it should not be solely relied on for curative therapy of early or active syphilitic infection. It is primarily indicated when there is intolerance to other drugs or other forms of bismuth ordinarily employed for the same purpose.

Bismuth sodium triglycollamate is subject to the same contraindications as bismuth preparations in general.

Dosage.—Bismuth sodium triglycollamate is administered orally in tablet form, usually prescribed in single doses of 0.41 Gm. (75 mg. of bismuth) two or three times daily after meals to provide a total daily dosage of from 0.82 Gm. (150 mg. of bismuth) to 1.23 Gm. (225 mg. of bismuth). The higher total daily dosage is desirable to maintain a satisfactory bismuth excretion level, but this may be temporarily reduced to the lower figure to overcome gastrointestinal disturbances that are occasionally encountered.

Tests and Standards.—

Bismuth sodium triglycollamate occurs as a white, odorless, crystalline powder with a somewhat salty taste. It is stable on exposure to air and is unaffected by light. It is very soluble in water but insoluble in organic solvents such as acetone, benzene and ether. The *pH* of a 2 per cent aqueous solution is between 7 and 8.

Add a drop of diluted hydrochloric acid to 0.1 Gm. of bismuth sodium triglycollamate: effervescence does not occur (*carbonate*). One gram of bismuth sodium triglycollamate should show no more chloride than corresponds to 0.5 cc. of fiftieth-normal hydrochloric acid (*U.S.P. XIII*, p. 709).

Dissolve 2 Gm. of bismuth sodium triglycollamate in 15 cc. of distilled water, add 5 cc. of diluted hydrochloric acid and shake the mixture until precipitation is complete. Collect the crystalline precipitate on a filter and use the filtrate for later tests. The melting point of the washed, dried crystals is not less than 225 C. Dissolve about 0.1 Gm. of the crystalline product, accurately weighed, in 50 cc. of hot water; add 2 drops of phenolphthalein T.S., and titrate with twentieth-normal sodium hydroxide. The neutralization equivalent should be not less than 94 and not more than 97.

Add 5 drops of barium chloride T.S. to 5 cc. of the filtrate: the solution shows no more sulfate than corresponds to 0.25 cc. of fiftieth-normal sulfuric acid.

To another 5 cc. portion of the filtrate add an equal amount of sulfuric acid (*caution!*) and cool the mixture. Superimpose ferrous sulfate T. S.: no brown ring is produced at the junction of the two liquids (*nitrate*).

Ignite 3 Gm. of bismuth sodium triglycollamate in a quartz crucible, not above 700 C., cool and cautiously add, dropwise, just sufficient nitric acid to dissolve the residue when warmed. Pour the acid solution into 100 cc. of water, evaporate to 30 cc., filter and take three 5 cc. portions of the filtrate. To one portion add an equal amount of diluted sulfuric acid: the liquid does not become cloudy (*lead*). To the second portion add an excess of ammonium hydroxide: no bluish tint develops (*copper*). To the third portion add diluted hydrochloric acid: a precipitate insoluble in excess hydrochloric acid and soluble in strong ammonia solution is not formed (*silver*).

Mix 0.2 Gm. of bismuth sodium triglycollamate with 2 cc. of sulfuric acid. Heat the mixture until fumes of sulfur trioxide are evolved. Cool and dilute with water until the solution measures 5 cc. This solution meets the requirements of the test for arsenic (*U.S.P. XIII*, p. 618.).

Dry about 1.2 Gm. of bismuth sodium triglycollamate, accurately weighed, at 100 C. for two hours: the loss in weight does not exceed 2 per cent.

Ignite about 1 Gm. of dried bismuth sodium triglycollamate, accurately weighed, in a shallow porcelain crucible in a muffle furnace at 700 C. Cool, dissolve the residue with 5 cc. of hydrochloric acid and transfer the solution quantitatively to a 250 cc. beaker with 100 cc. of water. Heat it to boiling and saturate the solution with hydrogen sulfide. Collect the precipitate on a tared Jena or Gooch crucible and wash it successively with water, alcohol, ether, carbon disulfide, alcohol and ether. Dry the residue to constant weight at 100 C., cool and weigh: the bismuth content calculated from the weight of bismuth sulfide obtained is not less than 18 per cent and not more than 19 per cent.

CARROLL DUNHAM SMITH PHARMACAL COMPANY, NEW BRUNSWICK, N. J.

Tablets Bistrimate: 0.41 Gm. Each tablet contains the equivalent of 75 mg. of bismuth.

U. S. patent 2,348,984.

Council on Foods and Nutrition

STATEMENT

The Council on Foods and Nutrition has long been opposed to the indiscriminate fortification of general purpose foods. Some exceptions to this rule have been recognized, however, such as the fortification of the general milk supply with 400 units of vitamin D per quart and the addition of iodine to table salt. The Council has not regarded the further fortification of the general milk supply, as is sometimes proposed, as being in the interest of public health and has so expressed itself in its regulations. Milk products which are made and sold as special purpose foods for particular groups of the population belong in a different category and are accepted on the basis of their individual merits.

At its meeting on May 8, 1948, the Food and Nutrition Board of the National Research Council prepared a statement concerning the addition of vitamins to milk which is in essential agreement with the opinion expressed by the Council on Foods and Nutrition. At its annual meeting on June 26, 1948, the Council voted to affirm the Board's opinion as expressed in the following statement. JAMES R. WILSON, M.D., *Secretary.*

ADDITION OF VITAMINS TO MILK

Statement of the Food and Nutrition Board, National Research Council, Adopted May 8, 1948

The Food and Nutrition Board has reviewed its previous actions concerning fortification of milk and reaffirms its decisions. In order to avoid possible misinterpretation of these decisions the following statements are intended to clarify the Board's position.

According to the decision of Dec. 2, 1944, the Food and Nutrition Board does not favor fortification of the general milk supply with minerals or vitamins other than vitamin D. The Board favors fortification of milk with vitamin D to the level of 400 U. S. P. units to the quart when the milk is used as a source of this vitamin. The Board favors fulfilment of the nutritional needs of the people by the use of ordinary foods so far as practicable. To that end it encourages education in proper choice of foods, improvement of food production, manufacture and preparation so as to increase and retain more fully the essential nutrients naturally present, and improvement in distribution so that diets adequate for health may be available to all persons.

According to the decision of July 1947, fortification of milk with vitamin A is not needed because in the United States diets adequate in vitamin A are available and fortification of milk with vitamin A is deemed unnecessary as a general public health measure.

The preceding decisions were not intended to hinder appropriate study and development of nutritionally useful new products. The Board realizes that development in technology and nutrition is rapid and does not favor restrictions which unduly handicap such progress. It did not assume and does not now intend that its decisions cited above should be interpreted as grounds for prohibiting investigation and market trials with milk modified by the addition of appropriate ingredients in reasonable amounts.

Modified forms of milk generally involve advance in price, at least during the early period of development. The Board emphasizes that wider and more uniform consumption of milk is highly desirable from the standpoint of public health, and it is particularly concerned with making available the best quality of milk at low cost.

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SATURDAY, NOVEMBER 6, 1948

ASEPSIS IN THE TREATMENT OF BURNS

Severe burns are frequently complicated by infection; surprisingly, however, the concept that a burn is a wound requiring the aseptic precautions ordinarily followed in the surgical management of other types of injury has been less widely recognized. Delay in acceptance of this concept of burns apparently stems from the formerly prevalent idea that infection in a burn was more or less inevitable, so that more attention has been focused on treatment than on prevention of infection. Apparently few careful investigations have been made to determine the exact sources of infection commonly contaminating burns.

Colebrook, Duncan and Ross [1] have recently drawn further attention to the causes of infection and have emphasized the need for asepsis in the local management of burns. These observers present the results of a bacteriologic study of 734 patients, including both sexes and all types of burns, during three years from 1945 to 1947. The patients were treated under conditions aimed at eliminating not only "contact" infections from hands and instruments, but also air-borne infections. They sought to determine the presence and source of infections by repeated bacteriologic examination of burn areas to discover, first, whether infection had been acquired in the hospital and, second, whether this occurred at the time of dressing the wounds ("contact" infections) or during the intervening time between dressings, i. e., air-borne cross infection from the hospital ward. Burns were dressed by aseptic surgical technic with local antiseptic agents under conditions that provided for the exclusion of air-borne infection in a specially designed room of the hospital. Care was taken to obtain perfect covering of the burns, and skin replacement was made at an early stage. By these procedures the investigators report bacteriologic evidence of hemolytic streptococcic and pyocyanic infection acquired at the time of dressing in less than 1 per cent of the patients. They point out that it has been more difficult to control cross infection occurring in the hospital wards between dressings. This was largely due to difficulty in obtaining adequate covering of the burns in areas about the face, buttocks or perineum, so that interference with the dressings by the patient led to contamination by direct contact or from air-borne dust. Another factor involves soaking of the dressing by serum exudation of the wound so that bacteria on the outside find an avenue for entrance through the dressing. Cellophane is suggested as a bacterial barrier.

In the study reported, streptococcic infections proved the easiest to control with locally applied penicillin, whereas infections by Pseudomonas aeruginosa and Staphylococcus aureus were more difficult to eliminate. The older system of admitting patients with burns to general wards of hospitals is unsatisfactory, because most of the sepsis of burns is due to preventable infection acquired in the hospital. Two objectives should be kept in view in the local management of burns: (1) blocking the transmission of pathogens at the time of dressing and (2) blocking of infection between dressings while the burns are covered. The investigators recommend that hospital facilities be provided for early isolation in all burn cases and for strict barrier nursing of all infected burns.

1. Colebrook, L.; Duncan, J. M., and Ross, W. P. D.: The Control of Infections in Burns, Lancet **1**: 893-899 (June 12) 1948.

PORTACAVAL SHUNTS FOR PORTAL HYPERTENSION

Portal hypertension develops secondarily to partial or complete obstruction of the portal blood flow. The obstruction may be one of two types, intrahepatic or extrahepatic, or a combination of both. The site of the portal block, whether intrahepatic or extrahepatic, can usually be determined by certain tests of hepatic function. According to Whipple,[1] a high retention of sulfobromophthalein sodium in the blood thirty minutes after intravenous injection, a positive reaction to the hippuric acid test, a reversal of the albumin-globulin ratio, a positive reaction to the cephalin flocculation test, all point to the diagnosis of cirrhosis of the liver with intrahepatic portal block. If these reactions are negative, one can assume that the block is extrahepatic.

Intrahepatic block may be caused by portal cirrhosis of the Laennec type or by thrombosis of the hepatic veins, the so-called Chiari syndrome. The extrahepatic block may be congenital, the result of thrombosis of the portal vein or of one or more of its tributaries. A combination of the two main types may occur. Whipple

1. Whipple, A. O.: The Problem of Portal Hypertension in Relation to the Hepatosplenopathies, Ann. Surg. **122**: 449-475 (Oct.) 1945.

described a form of extrahepatic block caused by cavernomatous transformation of the portal vein.

The syndrome of extrahepatic portal bed block described by Banti is characterized by secondary anemia, leukopenia, splenomegaly and a tendency to repeated massive gastrointestinal hemorrhages, most frequently associated with ruptured esophageal varices. The liver may be cirrhotic or may be normal, depending on the site of obstruction.

The idea of shunting portal blood into a systemic vein was conceived by Eck, a young Russian doctor working in Pavlov's laboratory. In 1877 he performed an anastomosis between the portal vein and the vena cava in a dog. The operation of diverting most of the portal blood from the liver appeared at the time too hazardous and was therefore not attempted on human beings. However, much to Eck's surprise the operation became a standard physiologic method, known as Eck's fistula, in studies of hepatic function. The dog on which Eck had performed the operation escaped from the animal house of the Military-Medical Academy (St. Petersburg), so that Eck was not able to observe the effect of the fistula. He did not occupy himself further with experimental physiology but became a popular physician in St. Petersburg.[2] Among the few successful attempts to perform a portacaval shunt in human beings are the case of Rosenstein in Germany and that of Bogoraz in Russia. Bogoraz anastomosed the superior mesenteric vein to the inferior vena cava. George Whipple[3] and his co-workers made the Eck fistula on dogs so that only the blood from the hepatic artery reached the liver. They found rather insignificant histologic changes in the liver and few functional abnormalities. The dog can tolerate the fistula from one to eight years.

The recent interest in portacaval shunts in the treatment of portacaval hypertension in human beings has resulted at least partially from the nonsuture method for blood vessel anastomosis devised by Blakemore and Lord.[4] Whipple[1] and Blakemore have carried out five splenorenal anastomoses, after removing the spleen and the left kidney, and five anastomoses of the portal vein to the inferior vena cava, end to side. All these patients have survived their operations. Blalock[5] prefers the suture method, believing that there is less likelihood of thrombosis with this method than there is in using a large foreign body such as vitallium® tube used in the nonsuture method.

Linton[6] and his associates performed portacaval shunts in 15 patients. They feel that operation of choice should be, whenever possible, a splenectomy and the suture type of end to side splenorenal anastomosis with preservation of the kidney. They have also employed successfully anastomosis of the superior mesenteric vein to the inferior vena cava and of the inferior mesenteric vein to the left ovarian vein in 2 patients who had had the spleen previously removed. They feel that direct anastomosis of portal vein to the inferior vena cava may frequently be too hazardous because of the extreme degree of vascularity in the region of the gastrohepatic ligament.

The result of a successfully carried out portacaval shunt is to prevent serious hemorrhages from esophageal varices, to reduce portal hypertension and to improve hepatic function.

MEDICAL SCIENCE AND THE ADMINISTRATION OF JUSTICE

One of the basic principles of the political credo of the United States places on the government responsibility for administration of the law with justice and humanity. Throughout most of the United States, government fails to provide a competent investigative agency for acquiring such medical facts as may be needed to recognize the crime of murder, to apprehend and convict murderers and to protect those unjustly suspected of murder.

One death in every 5 in the United States is either known or suspected to have resulted from violence or has occurred unexpectedly from obscure causes. Each year approximately 300,000 such deaths occur. In this tremendous annual pool of criminal, suspicious and obscure deaths 13,000 murders are officially recognized —1 murder per year for every 10,000 living persons. Over 250,000 persons now alive in the United States will be the victims of homicide. Since such deaths are investigated in most places by the archaic office of county coroner, the number of murders that actually take place or the number of deaths actually due to accident, suicide or natural causes that are erroneously attributed to murder cannot be estimated.

In most states the coroner's office is so incompetent in the acquisition and interpretation of medical facts that only when murders have been witnessed or when bodies bear wounds regarded as being obviously homicidal are the deaths likely to be reported as murders.[1] In regions where competent medical investigations of such deaths are conducted, in 10 per cent to 20 per cent

2. Babkin, B. P.: Personal communication.

3. Whipple, G. H.; Robscheit-Robbins, F. S., and Hawkins, W. B.: Eck Fistula Liver Subnormal in Producing Hemoglobin and Plasma Proteins on Diets Rich in Liver and Iron, J. Exper. Med. **81**: 171-191 (Feb. 1) 1945.

4. Blakemore, A. H., and Lord, J. W., Jr.: A Nonsuture Method of Blood Vessel Anastomosis, J. A. M. A. **127**: 685-691 (March 24) 1945; ibid. **127**: 748-753 (March 31) 1945.

5. Blalock, A.: The Use of Shunt or By-Pass Operations in the Treatment of Certain Circulatory Disorders, Including Portal Hypertension and Pulmonic Stenosis, Ann. Surg. **125**: 129-141 (Feb.) 1947.

6. Linton, R. R.; Hardy, I. B., Jr., and Volwiler, W.: Portacaval Shunts in the Treatment of Portal Hypertension, Surg., Gyn. & Obst. **87**: 129-144 (Aug.) 1948.

1. Report of the Committee of the American Medical Association to Study the Relationship of Medicine and Law, J. A. M. A. **125**: 577 (June 24) 1944.

of all murders the crime appears to be unwitnessed and the body does not display external wounds that can be regarded as indicative of homicide. With reasonable certainty it may be said that several thousands of murders pass unrecognized each year in the United States because of the absence of a competent agency for the acquisition of medicolegal information.

Unfortunately, nonrecognition of murder is not the only danger inherent to the coroner system as it functions in most areas. Not only has the United States a greater incidence of recognized murder per unit of population than any other civilized nation in the world, but it also has the highest rate of unsolved crime. Scientific evidence which could aid in the apprehension and conviction of the criminal is rarely acquired by the average coroner's office. Recognition of evidence pertaining to the precise nature of the instrument of death, the sequence of injuries, the time of injury, the time of death, the identity of the decedent and the various traces that might associate the criminal with the crime requires a degree of expertness and experience on the part of the medical investigator that is rarely if ever found in an office administered by an elected official whose only qualification is that he or she is a registered voter of the county. Failure to acquire available information of these kinds often leads to failure to arrest, or else to false arrest, to wrongful conviction and to unduly protracted or unsuccessful prosecution.

Less important statistically but of tremendous moral importance is the fact that investigative incompetence occasionally leads to suspicion or prosecution of persons for murders that were never committed. Marks on a body that appear to the lay coroner and his jury and sometimes even to a physician inexperienced in legal medicine as evidence of criminal violence are sometimes due to misadventure or suicide. If in such circumstances there appear to be motive and opportunity for some one to have committed murder the inquest may charge some one with a crime that was never committed. Incompetent medical evidence derived from the coroner's office can only be responsible for many unfounded criminal proceedings.

A few states [2] have already established medical examiner systems, headed by a competent pathologist with experience in legal medicine and staffed by physicians within the state—these last serve on a part time basis. The function of such a system is to provide reliable facts which would not otherwise be available. The purpose of this fact finding is the ever closer approximation of law and its administration to the fullest justice. Justice can show neither fear nor favor, bias nor bigotry. It can tolerate neither ignorance nor charlatanry. In many parts of the United States the people have suffered, and are suffering, under these perversions of justice.

2. Maryland: Department of Postmortem Examiners, Laws of 1939, Chapter 369. Virginia Law: Governing Postmortem Examinations, Coroners, etc., Chapter 355, Acts of Assembly, 1946.

Current Comment

A NEW HEALTH BULLETIN

Periodicals on health for the public issued by health departments are relatively common. Similar publications by state medical societies still remain unusual. The Arizona Medical Association presents a new publication [1] entitled *Health Activities Bulletin,* published "in the interest of *your* health." This bulletin, which is a 24 page quarterly with a statewide circulation of 5,000 in 1948, is one expression of the activities of two committees created by the Arizona Medical Association in 1947. The first issue has a diversified table of contents including an article on child guidance, one on physical education, one on health in public schools and one on the public health nurse in the schools. There are a special article on infantile paralysis, a page devoted to the Woman's Auxiliary, a listing of health services available in Arizona and a scattering of short features. The entire makeup of the *Bulletin* is attractive and creditable.

ST. LUKE

October 18 was the Feast of St. Luke, who among all saints is the patron saint of physicians. In many places the day was celebrated by medical colleges and hospitals with special ceremony. Luke was referred to by St. Paul as "My beloved Luke, the physician." By strange coincidence, when William Harvey of England entered the medical school of the University of Padua in Venice in 1598, it is recorded that the academic year began on October 18 with a celebration of mass in honor of St. Luke. In a baccalaureate sermon entitled "The Beloved Physician," the Rev. John R. Cunningham, president of Davidson College, emphasized the fact that Luke was particularly concerned with the sanctity and worth of the individual. In the Book of Luke he makes it clear that to him individuals always take precedence over masses of men. The Reverend Mr. Cunningham says, "This is a fundamental principle at the heart of Christianity. It is basic in the democracy for which we now contend." St. Luke records that "when Christ at the end of a particular day was confronted with a great mass of the sick, 'He, laying His hand on every one of them, healed them.'" It was the individual with whom he was concerned rather than the mass. Without entering into any theologic discussions concerning whether or not Luke was actually a physician or actually the author of the portion of the New Testament accredited to him, he represents today the very embodiment of the highest type of physician. Those who would reduce human beings to a common entity, treat them without regard to individual humanity and spirituality, might well realize that the great majority of physicians today have learned the importance of the individual when his health and life are concerned and that that has come down to us through many hundreds of years.

1. "Health Activities Bulletin," Arizona Medical Society, September 1948, vol. 1, no. 1.

ORGANIZATION SECTION

Official Notes

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

November 28-29, 1948
St. Louis, Mo.

PROGRAM

SUNDAY, NOVEMBER 28

Missouri Room, Hotel Statler

8:30 a. m. REGISTRATION.

9:30 a. m. CALL TO ORDER. Dwight L. Wilbur, San Francisco, Chairman of Program Committee.

9:35 a. m. PURPOSES OF THE CONFERENCE. George F. Lull, Chicago, Secretary and General Manager, American Medical Association.

9:40 a. m. ADDRESS OF WELCOME. Roscoe L. Sensenich, South Bend, Ind., President, American Medical Association.

9:50 a. m. SYMPOSIUM ON MEDICAL LEGISLATION:

From the Point of View of the Board of Trustees of the American Medical Association. Edward J. McCormick, Toledo, Ohio.

From the Point of View of a State Association. Dwight H. Murray, Napa, Calif.

From the Point of View of a Congressman. Speaker to be announced.

11:00 a. m. SYMPOSIUM ON OSTEOPATHY IN ITS RELATIONSHIP TO MEDICINE:

William H. Halley, Denver, Delegate to American Medical Association.

George W. Covey, Lincoln, Neb., Secretary, Nebraska Medical Examining Board.

Creighton Barker, New Haven, Conn., Secretary, Connecticut Medical Examining Board.

12 M. RECESS FOR LUNCHEON.

1:30 p. m. REPORT ON COOPERATIVE MEDICAL ADVERTISING BUREAU. Stanley B. Weld, Hartford, Conn., Chairman, Advisory Committee, Cooperative Medical Advertising Bureau, and Alfred J. Jackson, Chicago, Director, Cooperative Medical Advertising Bureau.

1:45 p. m. ANNOUNCEMENTS.

Round Table Conferences

Room 102, Hotel Statler, 2 p. m.

CONFERENCE ON MEDICAL SOCIETY RADIO PROGRAMS

Earl Whedon, Sheridan, Wyo., Associate Editor, *Rocky Mountain Medical Journal*, Moderator

Jonathan Forman, Columbus, Ohio, Editor, *Ohio State Medical Journal*, and John F. Conlin, Boston, Director of Public Information, Massachusetts Medical Society.

Missouri Room, Hotel Statler, 2 p. m.

CONFERENCE ON MEDICAL-HOSPITAL PREPAYMENT PLANS

Peter Pineo Chase, Providence, R. I., Editor, *Rhode Island Medical Journal*, Moderator

Indemnity Plans. Carll S. Mundy, Toledo, Ohio, Chairman, Executive Committee, Ohio Medical Indemnity, Inc.

Service Plans. Robert L. Novy, Detroit, President, Michigan Medical Service.

Cooperatives. Frank Elias, Duluth, Minn.

Room 104, Hotel Statler, 2 p. m.

CONFERENCE ON MEDICAL LEGISLATION

Charles Crownhart, Madison, Wis., Secretary, State Medical Society of Wisconsin, Moderator

Edward J. McCormick, Toledo, Ohio, and Dwight H. Murray, Napa, Calif., Trustees of American Medical Association, and a speaker to be announced.

Missouri Room

6:30 p. m. DINNER FOR SECRETARIES AND EDITORS.

8:00 p. m. STATE MEDICAL JOURNAL CLINIC.

Dwight L. Wilbur, San Francisco, Chairman of Program Committee, Presiding

Journals selected for discussion are *Arizona Medicine*, *The Pennsylvania Medical Journal*, *The Journal of the South Carolina Medical Association* and the *Texas State Journal of Medicine*, the editors of which have cooperated by authorizing the study and discussion of their publications for this Conference.

Format and Typography. John Lamoreoux, St. Louis, The Warwick Press.

Editorial Content. Edwin P. Jordan, Cleveland.

Advertising Format and Makeup. Harry C. Phibbs, Chicago, Harry C. Phibbs Advertising Company.

MONDAY, NOVEMBER 29

Missouri Room

10:00 a. m. MEDICAL AND HOSPITAL CARE PREPAYMENT PLANS. Paul R. Hawley, Chicago, Chief Executive Officer, Blue Shield-Blue Cross Commissions.

10:30 a. m. MEDICAL CARE OF THE NATION IN THE EVENT OF ANOTHER WAR. James C. Sargent, Milwaukee, Chairman, Council on National Emergency Medical Service, American Medical Association.

Stafford L. Warren, Los Angeles, Dean, Medical School of University of California at Los Angeles and Radiological Chief Consultant at Bikini Atomic Bomb Tests.

11:00 a. m. TEN MINUTE REPORTS BY MODERATORS OF SUNDAY AFTERNOON CONFERENCES.

11:30 a. m. GENERAL DISCUSSION.

12:00 Noon. ADJOURNMENT.

SOUTH CENTRAL REGIONAL CONFERENCE

MAYO HOTEL, TULSA, OKLA.

SATURDAY AND SUNDAY, NOVEMBER 13 AND 14

SPONSORED BY THE A. M. A. COUNCIL ON MEDICAL SERVICE AND

ARKANSAS MEDICAL SOCIETY
KANSAS MEDICAL SOCIETY
LOUISIANA STATE MEDICAL SOCIETY
STATE MEDICAL ASSOCIATION OF TEXAS
MISSOURI STATE MEDICAL ASSOCIATION
OKLAHOMA STATE MEDICAL ASSOCIATION

Program

SATURDAY MORNING SESSION

9:30 a. m. *Registration*

JAMES R. MCVAY, M.D., Kansas City, Mo., Council on Medical Service, American Medical Association, *Chairman*

Welcome

C. E. NORTHCUTT, M.D., President, Oklahoma State Medical Association, Ponca City, Okla.

Why Get Together?

JAMES R. MCVAY, M.D.

ROUNDTABLE DISCUSSION—*What We Expect from the American Medical Association and the Council on Medical Service*

Moderator: GEORGE A. SCHENEWERK, M.D., Chairman, Committee on Public Relations, State Medical Association of Texas

Discussants: From each of the state associations (5 minutes each)

Open Question and Answer Period.

LUNCHEON

Medical Aspects in the Next National Emergency

JAMES C. SARGENT, M.D., Milwaukee, Chairman, Council on National Emergency Medical Service, American Medical Association

SATURDAY AFTERNOON SESSION

ROUNDTABLE DISCUSSION—*Present Day Problems*

Moderator: J. D. MCCARTHY, M.D., Omaha, Council on Medical Service, American Medical Association

Medical School Influence on the Practice of Medicine
Discussant (15 minutes): FRANKLIN D. MURPHY, M.D., University of Kansas Medical Center, Kansas City, Kan.

Hospital Encroachment on the Practice of Medicine
Discussant (15 minutes): DANIEL J. MURPHY, M.D., New Orleans

Open Question and Answer Period

ROUNDTABLE DISCUSSION—*The National Health Assembly*

(The discussion of the National Health Assembly will include "The Ewing Report")

Moderator: JAMES STEVENSON, M.D., Tulsa, Okla.

Conflict as to Methods of Rendering Medical and Hospital Service
Discussant (10 minutes): THOMAS A. HENDRICKS, Chicago, Secretary, Council on Medical Service, American Medical Association

Effects on Future Legislation
Discussant (10 minutes): JOSEPH S. LAWRENCE, M.D., Washington, D. C., Director, Washington Office of the Council on Medical Service

Open Question and Answer Period

SATURDAY EVENING SESSION

DINNER

Wake Up, Doctor! Wake Up!

MR. JOHN I. TAYLOR, Mountain View, Okla., President, Oklahoma Farm Bureau Federation

SUNDAY MORNING SESSION

10:00 a. m. *Rural Health Symposium*

Moderator: ALLEN T. STEWART, M.D., Lubbock, Texas, Committee on Rural Medical Service, American Medical Association

What Does It Take to Provide Adequate Health Care?

Rural Medical Care—The Farmer's View

The Cooperative Hospital

Establishing Local Health Units

Organizing Local Health Councils

The Medical School and Rural Practice

Reports of State Association Rural Health Committees

SUMMARY OF LEGISLATION OF INTEREST TO PHYSICIANS ENACTED BETWEEN JULY 1, 1947 AND JUNE 30, 1948

PREPARED BY GEORGE E. HALL
Bureau of Legal Medicine and Legislation

The legislatures of nine states were in regular session during the period covered by this survey. Three or four additional states held special sessions. As is usual in the "off year" of state legislation, the number of proposals considered and laws enacted were relatively small. Only a few laws specifically concern the licensing of physicians, but medical schools, medical scholarships and medical research programs received legislative approval in various forms. Activity along the line of hospital survey and construction acts was continued and a number of other general surveys planned, e. g., a survey of the conduct of the board of naturopathic examiners in South Carolina, a survey of nonprofit hospital service corporations in Massachusetts and Virginia, a survey of mental hygiene at Sing Sing Prison and a survey of the problem of alcoholism in Virginia and South Carolina. Mississippi became the forty-eighth state to enact a workmen's compensation law. Most of the proposals of interest to the medical profession have previously been briefly referred to in THE JOURNAL at the time of their introduction, passage or enactment. This survey summarizes only those which successfully withstood the legislative processes and were enacted into law.

I. ALLIED PROFESSIONS AND SUNDRY VOCATIONS

Chiropody.—Bills relating to the practice of chiropody were enacted in Kentucky, Massachusetts and New York. Kentucky [1] created a board of examiners for chiropody and defined chiropody as the diagnosis and the local, medical, mechanical and surgical treatment of ailments of the human foot, and massage in connection therewith, except amputation of the foot or toes, the use of anesthetics other than local or the use of drugs or medicine other than local. The New York [2] law concerned itself with the definition of podiatry by providing as follows: A person practices podiatry who holds himself out as being able to diagnose ailments of the human feet by mechanical, chemical and physical means and/or as being able to practice minor surgery on the feet within the following limitations: the practice of minor surgery shall not permit operations on the bones, muscles or tendons of the feet or any other part of the body except operations for minor deformities of mechanical and functional nature, including the structures superficial to the deep fascia and including all structures of the terminal phalanges. It shall confer the right to treat for disease, pain, injury and deformity of the feet, and it shall not include any other part of the body. The treatment of fractures shall be limited to simple uncomplicated fractures of the phalanges and metatarsals. The use of anesthesia shall be limited to local anesthetics for therapeutic purposes as well as for anesthesia, and the right to use non-narcotic postoperative sedatives. The Massachusetts [3] law amended the chiropody act by setting forth the procedure by which a chiropody school may obtain board approval.

Cosmetology.—Louisiana [4] and Mississippi [5] created state boards of examiners for cosmetology and cosmetic therapy and defined such practice, the Louisiana definition including "also electrolysis by the use of electricity for cosmetic purposes and not for the treatment of any disease or the practice of surgery, or for the removal of any part of the skin or body except under medical supervision."

Dentistry.—Kentucky [6] and New Jersey [7] required persons desiring to practice as dental hygienists first to obtain licenses therefor from the dental examining board. The Kentucky law further required that the dental hygienist do his work under the continuous supervision and inspection of a licensed dentist

1. Ky., Laws 1948, c. 176.
2. N. Y., Laws 1948, c. 361.
3. Mass., Laws 1948, c. 557.
4. La., Acts 1948, Act No. 211.
5. Miss., Laws 1948, c.——, approved April 13, introduced as H. 241.
6. Ky., Laws 1948, c. 6.
7. N. J., Laws 1948, c. 34.

and defined dental hygiene as the treatment of human teeth by removing therefrom calcareous deposits and by removing accumulated accretion from directly beneath the free margin of the gums and by polishing the exposed surface of the teeth and by making roentgenograms of teeth and surrounding tissues. An Alabama [8] law enacted last year, but too late to be included in the 1947 survey, provided for the creation and establishment of a four year school of dentistry in the state. Louisiana [9] provided that no member of the faculty or teaching staff of any university or college having a dental department in the state and no dentist owning stock or operating a dental supply business or commercial laboratory is eligible for appointment to the state board of dentistry. One Massachusetts [10] law provided that no corporation could conduct a dental office and that no person could conduct a dental office under any name other than that of the dentist actually owning the practice; another [11] increased the penalty for the illegal practice of dentistry. Mississippi [12] provided for gubernatorial appointments to the State Board of Dental Examiners from a list submitted by the Mississippi Dental Association. A Massachusetts [13] resolution provided for a survey of laws relating to the practice of dentistry by an unpaid commission to report back to the clerk of the house of representatives during December of 1948.

Nursing.—Louisiana,[14] New York [15] and Rhode Island [16] enacted laws providing for the licensing and regulating of practical nurses. The Louisiana law defined practical nursing as the performance of nursing services for patients, wherein the practical nurse is at all times under the supervision and direction of a licensed physician or a registered nurse acting under the supervision of a licensed physician. Two New York [17] laws authorized the licensing without examination of graduates of accredited nursing schools from other states under certain conditions. Three Mississippi [18] laws created scholarships for students of nursing. One [18a] of them authorized the establishment of a scholarship program for the advanced study of nursing to consist of forty scholarships of the value of not more than $3,000 each and provided that students accepting assistance from these scholarships be required to spend a period of time nursing in the state of Mississippi equal to the number of years during which they accepted the benefits of the scholarships. Another [18b] granted an appropriation to the board of trustees of state institutions of higher learning of $120,000 for the purpose of setting up scholarships for advanced studies in nursing. The third [18c] authorized the establishment of a school of nursing at the University of Mississippi and the inauguration of a scholarship program in connection therewith. Still another Mississippi [19] law amended the law relating to the Mississippi Commission on Hospital Care by, among other things, authorizing it to lay out a plan for building and equipping schools of nursing to be located in strategic points in the state for the promotion of the advancement of nursing education. A Virginia [20] law authorized the governing boards of the Medical College of Virginia and of the University of Virginia each to establish thirty-five nursing scholarships of the annual value of $100 each. A Massachusetts [21] law reduced the age limit of applicants for admission to nursing schools from 21 to 20 years. A Mississippi [22] law amended the Mississippi code relating to registered nurses by clarifying the powers and duties of the board of nurses' examiners. A Louisiana [23] law provided for the establishment and operation of a psychiatric training course for student nurses in the Central Louisiana State Hospital.

8. Ala.,Laws 1947, Gov. Act 625.
9. La., Acts 1948, Act No. 303.
10. Mass., Laws 1948, c. 270.
11. Mass., Laws 1948, c. 123.
12. Miss., Laws 1948, c.——, approved April 10, introduced as S. 450.
13. Mass., Resolves 1948, c. 50.
14. La., Acts 1948, Act No. 509.
15. N. Y., Laws 1948, c. 385.
16. R. I., Laws 1948, c. 2041.
17. N. Y., Laws 1948, c. 439; c. 194.
18. (*a*) Miss., Laws 1948, c.——, approved April 13, introduced as H. 290; (*b*) Miss., Laws 1948, c.——, approved April 14, introduced as H. 294; (*c*) Miss., Laws 1948, c.——, approved April 14, introduced as H. 291.
19. Miss., Laws 1948, c.——, approved April 13, introduced as H. 532.
20. Va., Laws 1948, c. 529.
21. Mass., Laws 1948, c. 108.
22. Miss., Laws 1948, c.——, approved April 13, introduced as H. 312.
23. La., Acts 1948, Act No. 271.

Optometry.—South Carolina [24] provided general amendments to the optometry act, including, among other things, a provision that no optometrist may use the title Doctor unless he has actually received a degree from a duly authorized college.

Pharmacy.—Massachusetts [25] authorized the Boston School of Pharmacy to issue the Bachelor of Science in Pharmacy degree after meeting certain requirements. Mississippi [26] prohibited the operation of any drugstore or pharmacy unless the owner or operator be, or shall have in his regular employ, a registered pharmacist or a licensed physician on duty. Mississippi [27] also required all persons licensed to practice pharmacy to renew their licenses annually. Louisiana [28] enacted a law regulating, defining and controlling the practice of pharmacy, and Virginia [29] enacted general amendments to the pharmacy law relating to the sale and inspection of drugs.

II. DISEASE CONTROL AND PUBLIC HEALTH MATTERS

General Public Health Programs.—Louisiana [30] provided an appropriation to the state board of health to prevent any decrease in the public health programs initiated within the state. South Carolina [31] enacted a resolution directing the executive committee of the Board of Health to make a careful investigation of the allocation of funds to the different counties for county health work and to adopt a plan which would distribute such funds equitably.

School Health Programs.—Louisiana,[32] Massachusetts,[33] Mississippi,[34] New York [35] and Virginia [36] enacted legislation designed to facilitate the operation of the National School Lunch Act. Mississippi [37] also provided an appropriation for assistance in carrying out a program of coordinated school, health and nutrition services in cooperation with the international health division of the Rockefeller Foundation and the general education board. A Massachusetts [38] law authorized the school committee of the city of Boston to make appropriattions for organizing and conducting physical training and exercises, athletics, games and the like under the control of the committee and authorized the payment by insurance or otherwise of the reasonable hospital, medical and surgical expenses incurred by or in behalf of any student who sustains injuries while participating in any of the organized school athletics.

State Faciliteis for Tuberculosis Diagnosis and Control.—Kentucky [39] and Louisiana [40] created state tuberculosis sanatorium commissions in their respective states. Arizona [41] provided an appropriation to the state department of health to assist in remodeling buildings and in purchasing and installing surgical and x-ray equipment at the existing state tuberculosis sanatorium. New Jersey [42] and South Carolina [43] enacted laws authorizing the commitment to county hospitals or sanatoriums of persons who fail to obey rules and regulations concerning the prevention or spread of tuberculosis so as to restrain such persons from being a menace to their household or community. A New York [44] law amended the public health law by providing that no vaccine shall be used for the purpose of inducing immunity against tuberculosis unless it has been produced in accordance with regulations established or approved by the state commissioner of health.

Venereal Disease Appropriations for Eradication.—Two Mississippi [45] laws provided appropriations to defray the expenses of the state program for the eradication and control of syphilis

24. S. C., Acts 1948, Gov. Act No. 747.
25. Mass., Laws 1948, c. 296.
26. Miss., Laws 1948, c.——, approved April 10, introduced as S. 229.
27. Miss., Laws 1948, c.——, approved April 13, introduced as S. 446.
28. La., Acts 1948, Act No. 469.
29. Va., Laws 1948, c. 41.
30. La., Acts 1948, Act No. 79.
31. S. C., Acts 1948, c.——, adopted April 1, introduced as S. 1559.
32. La., Acts 1948, Act No. 44.
33. Mass., Laws 1948, c. 548.
34. Miss., Laws 1948, c.——, approved April 12, introduced as H. 1089.
35. N. Y., Laws 1948, c. 511.
36. Va., Laws 1948, c. 462.
37. Miss., Laws 1948, c.——, approved April 9, introduced as H. 1047.
38. Mass., Laws 1948, c. 334.
39. Ky., Laws 1948, c. 190.
40. La., Acts 1948, Act No. 25.
41. Ariz., Laws 1948, c. 36.
42. N. J., Laws 1948, c. 42.
43. S. C., Acts 1948, Gov. Act No. 1058.
44. N. Y., Laws 1948, c. 179.
45. Miss., Laws 1948, c.——, approved February 17, introduced as H. 331; c.——, approved March 23, introduced as H. 717.

and other venereal diseases. A third Mississippi [46] law provided an appropriation for the treatment of neurosyphilis and other diseases leading to insanity.

Miscellaneous.—Mississippi [47] required the state building commission to establish facilities for the treatment of alcoholics and narcotic addicts.

III. FOODS, DRUGS, COSMETICS AND THERAPEUTIC DEVICES

Aminopyrine, Sulfonamide Barbiturates and Other "Dangerous Drugs."—South Carolina [48] put sulfanilamide, sulfathiazole, sulfapyridine, sulfadiazine, aminopyrine, thyroid and other antifat preparations, together with any other drugs declared to be "dangerous drugs," on a prescription basis. Massachusetts [49] amended and reenacted the law relative to adulteration and misbranding of dangerous drugs by providing, among other things, that no person shall sell or offer for sale at retail any harmful drug other than to a physician, dentist or veterinarian, except on the written prescription of a physician, dentist or veterinarian. "Harmful drug" is defined by the act as including amidopyrine, amphetamine, desoxyephedrine, cantharides, cinchophen, digitalis, cinitrocresol, dinitrophenol, ergot, estrogen, barbituric acid, chloral hydrate, paraldehyde, thyroid, pituitary, croton oil, oil of pennyroyal, oil of savin, oil of tansy and any other drug deemed by the department of public health to be a harmful drug.

Narcotics.—Louisiana,[50] Massachusetts [51] and New Jersey [52] enacted amendments to the narcotic laws of those states. The Louisiana law added marijuana to the regulations covered by the narcotic drug act and also adds provisions relating to the definition and punishment of narcotic addicts. The Massachusetts law prohibited the refilling of prescriptions for narcotic drugs. The New Jersey law added amidone (methadone) to the definition of "narcotic drugs."

IV. HOSPITALS

State Hospital Construction Programs.—Alabama [53] and Kentucky [54] enacted hospital construction acts. The Alabama law enacted last year, but too late to be included in the 1947 survey, was for the purpose of providing funds to the State Board of Health for the planning and constructing of state-owned and other public and nonprofit hospitals in the state. The Kentucky law provided for the creation and establishment of a "Division of Medical Hospitals and related services" in the Department of Health to make a survey of hospital facilities throughout the state and to accept federal funds to assist in the construction of additional needed facilities. This law required the appointment of an advisory council and the preparation of necessary regulations and standards pertaining to the conduct and operation of hospitals constructed by virtue of the act. Another Kentucky [55] law more or less supplemented this act by creating a Kentucky Building Commission to have charge of buildings constructed throughout the state and by providing an appropriation to this commission to be used for matching funds for hospital construction under any law now existing or that may be passed by the national congress. Two Mississippi [56] laws amended the 1946 hospital survey and construction act. One [56a] included nonprofit hospitals and facilities among those organizations eligible for grants in aid; the other [56b] authorized the operation and equipping of health centers or health departments in the various municipalities of the state. Two other Mississippi [57] laws provided appropriations to the Mississippi Commission on Hospital Care for the purpose of building, erecting and equipping hospitals and other facilities in the state. New York [58] extended the life of the Joint Hospital Survey and Planning Commission to April 1, 1949, and provided for the submission by the commission of an interim report on or before April 1, 1948. Virginia [59] provided regulations for the operation of a hospital construction fund to accept and dispense funds for the state hospital construction program. Mississippi [60] authorized an appropriation of $1,500,000 for the construction and equipping of a teaching hospital in the School of Medicine of the University of Mississippi, and South Carolina [61] provided that the Medical College of South Carolina could participate in federal funds made available to assist it in financing the construction and equipment of a teaching hospital.

Hospital Districts.—Louisiana [62] authorized adjoining parishes to create hospital service districts to provide better hospital service therein.

Liability for Taxes.—An Alabama [63] law enacted last year but too late to be included in the 1947 survey, amended the law relating to exemptions from ad valorem taxes by adding to such exempt properties all property, real or personal, used exclusively for hospital purposes, to the amount of $20,000, where such hospitals maintain wards for charity patients and subject to a few other conditions.

Licensing Requirements.—Institutional licensing laws were enacted in a number of states. Wyoming [64] required all hospitals, nursing homes, sanatoriums and the like to obtain a license from the Department of Public Health and authorized such department to make the necessary rules and regulations relative thereto. A Mississippi [65] law, referring just to hospitals, provided for the appointment of an advisory hospital council to consult and advise with the licensing agency and to assist in the development of rules, regulations and standards to be required of the hospitals seeking licensure. This law further provided that no rules, regulations or standards shall be adopted or enforced which would have the effect of denying a license to a hospital or other institution required to be licensed hereunder, solely by reason of the school or system of practice employed or permitted to be employed therein. Rhode Island [66] made certain amendments to the existing hospital licensing law, among which was a definition of a hospital as "an institution for the lodging, care and treatment of persons suffering from disease or other abnormal physical or mental conditions." This law exempted convalescent homes from its operations and provided that no person could obtain medical or surgical treatment under false representations as to his financial condition from any hospital, outpatient department or dispensary licensed by the hospital licensing law. Massachusetts [67] and Rhode Island [68] provided for the licensing, regulating and inspecting of homes for aged or convalescent persons, the Massachusetts law also applying to hospitals and sanatoriums. South Carolina [69] amended the existing hospital licensing law by granting to institutions three years within which to comply with the rules, regulations and minimum standards provided for therein.

State Hospitals.—A Louisiana [70] concurrent resolution urged the superintendents of the state's general hospitals to make every possible effort to provide facilities for at least a limited number of chronically ill patients who may need hospitalization, surgery or other medical treatment and whose lives may be made more endurable by such treatment. Louisiana [71] also created a state hospital for the care and treatment of mentally ill persons.

V. REGULATION OF HEALING ARTS PRACTICE

Annual Registration.—Virginia [72] required the annual renewal of certificates to practice medicine, homeopathy, osteopathy, chiropractic, naturopathy or chiropody on or before June 30 of each year.

46. Miss., Laws 1948, c.——, approved March 23, introduced as H. 719.
47. Miss., Laws 1948, c.——, approved March 23, introduced as H. 3.
48. S. C., Acts 1948, Gov. Act No. 1156.
49. Mass., Laws 1948, c. 598.
50. La., Acts 1948, Act No. 416.
51. Mass., Laws 1948, c. 473.
52. N. J., Laws 1948, c. 125.
53. Ala., Laws 1947, Gov. Act No. 484.
54. Ky., Laws 1948, c. 189.
55. Ky., Laws 1948, c. 237.
56. (*a*) Miss., Laws 1948, c.——, approved February 18, introduced as H. 164; (*b*) Miss., Laws 1948, c.——, approved April 12, introduced as H. 533.
57. Miss., Laws 1948, c.——, approved April 9, introduced as H. 818; c.——, approved April 9, introduced as H. 1008.
58. N. Y., Laws 1948, c. 112.
59. Va., Laws 1948, c. 399.
60. Miss., Laws 1948, c.——, approved March 24, introduced as S. 356.
61. S. C., Acts 1948, Gov. Act No. 1129.
62. La., Acts 1948, Act No. 536.
63. Ala., Laws 1947, Gov. Act 639.
64. Wyo., Laws 1948, c.——, approved June 30, introduced as H. 6-X.
65. Miss., Laws 1948, c.——, approved April 13, introduced as H. 687.
66. R. I., Laws 1948, c. 2112.
67. Mass., Laws 1948, c. 618.
68. R. I., Laws 1948, c. 2111.
69. S. C., Acts 1948, Gov. Act No. 935.
70. La., Acts 1948, c.——, adopted June 1, introduced as S. Con. Res. 10.
71. La., Acts 1948, Act No. 238.
72. Va., Laws 1948, c. 491.

Corporate Practice.—Virginia [73] made it unlawful for any physician, dentist or optometrist to practice his profession as a lessee of any commercial or mercantile establishment or to advertise, either in person or through any commercial or mercantile establishment, that he is a duly registered practitioner and is practicing or will practice medicine, dentistry or optometry as a lessee of such commercial or mercantile establishment.

Psychologists.—Kentucky [74] provided for the creation of a board of examiners for the certification of clinical psychologists.

Exemptions from Medical Practice Acts.—New York [75] amended the education law by providing that after July 1, 1949, medical students performing clinical clerkships or similar functions in a legally incorporated hospital shall be exempt from the provisions of the medical practice act. Virginia [76] amended the medical practice act by, among other things, exempting therefrom interns and residents in legally established and licensed hospitals provided their practice is confined strictly to persons who are bona fide patients within the hospital or who receive treatment and advice in an organized outpatient department of the hospital to which ambulant patients regularly come for professional services rendered under supervision of licensed members of the hospital staff. The law also provided, however, that such interns and residents must have completed successfully the preliminary academic education required for admission to examinations given by the board in his particular field of practice or hold a valid license issued in a state maintaining standards acceptable for reciprocity with the state of Virginia. No graduate of a substandard medical school could be so employed except under particular cases.

Causes for Revocation of Licenses.—Massachusetts [77] amended its medical practice act by providing for the revocation of the certificate of registration of any physician guilty of the use of narcotic drugs in any way other than for therapeutic purposes. Virginia [78] amended the medical practice act by authorizing the state board of medical examiners to suspend or revoke the certificate of a physician who has been the legally responsible head of a hospital the license of which has been revoked because of illegal practice or conduct or practices detrimental to the welfare of a patient therein by the state board of health.

VI. RIGHTS AND PRIVILEGES, DUTIES AND LIABILITIES OF PRACTITIONERS

Special Privilege (Offices Which Must Be Held by Physicians).—Mississippi [79] amended the law relating to the procedure for committing persons to state mental institutions by providing that no person shall be admitted to a state mental institution except on a satisfactory report from two reputable licensed physicians. Another Mississippi [80] law provided that the executive officer of the state board of health shall be a physician versed in bacteriology, hygiene and sanitary science and otherwise fitted and equipped to execute the duties incumbent on him by law and who shall not engage in the practice of medicine.

Occupational Taxes.—A Virginia [81] law required every practicing medical doctor to obtain a revenue license; a Kentucky [82] law authorized certain class cities to provide license fees for the practice of any profession.

VII. MEDICAL AND HOSPITAL SERVICE PLANS, ETC.

Prepaid Hospital Care Plans.—Louisiana [83] declared businesses organized under the insurance laws and engaged exclusively in the business of furnishing hospital service, medical or surgical benefits to subscribers to be charitable and beneficial institutions and exempt from any form of taxation. Such institutions, however, must pay an annual license fee of $250.

Prepaid Medical Care Plans.—Mississippi [84] and South Carolina [85] enacted laws providing for the organization of medical service corporations. The Mississippi law was an enabling act for the organization and operation of nonprofit hospital, medical and surgical service corporations. The South Carolina law provided for the chartering and method of organization and operation of nonprofit medical service plans furnishing medical service by physicians at the expense of the corporation to subscribers to the plan. Medical service is defined to include all general and special medical services ordinarily provided by licensed physicians in accordance with the accepted practices of the community at the time the service is rendered. Physician is defined as any physician duly licensed to practice medicine in the state of South Carolina under the provisions of the medical practice act. Massachusetts [86] authorized medical service corporations to contract with hospital service corporations for the joint or cooperative administration of their affairs.

Accident and Sickness Insurance.—New Jersey [87] enacted a temporary disability benefits law.

Government Assistance to Municipal Employees and Indigents.—Mississippi [88] provided that certain municipalities in the state may pay out of the general fund of the municipality reasonable hospital and medical expenses of any member of the fire or police department on account of occupational diseases or accidents sustained by such member in the discharge of his duties. A Louisiana [89] concurrent resolution directed the Department of Institutions to take appropriate action to provide better hospital facilities for the indigent sick, to consider the installation of adequate free ambulance service and to consider the establishment in private hospitals of charity beds on a contractual basis. A Louisiana [90] law provided an appropriation to the Department of Institutions for the purpose of purchasing ambulances, maintaining adequate free ambulance service for state hospitals and paying for charity beds in rural areas for the hospitalization of indigents. Another Louisiana [91] law resulted in the creation of a state hospital board to contract or enter into agreements with privately owned hospitals and other institutions for the care and treatment of indigent or destitute sick persons. At least two members of the board must be capable and reputable physicians engaged in the general practice of medicine in the state. New Jersey [92] authorized municipalities having no municipal hospital to make appropriations each year to be applied to the purpose of paying the cost of supporting and maintaining indigent patients in hospitals in the municipality supported by private charity.

Miscellaneous.—Massachusetts [93] authorized the commissioner of the state police to pay the reasonable hospital, medical and surgical expenses incurred by any officer disabled while on duty.

VIII. WORKMEN'S COMPENSATION AND OCCUPATIONAL DISEASE LEGISLATION

Occupational Diseases.—Virginia [94] amended the occupational disease law by including pneumoconiosis within the list of occupational diseases covered by the act.

Extent of Medical, Hospital, Dental and Other Care.—Massachusetts [95] provided that medical services shall be made available to an injured employee as long as they are necessary, regardless of the fact that maximum compensation under other sections of the law might have been paid.

Miscellaneous (Completely New Acts, etc.).—Mississippi [96] enacted a new workmen's compensation law for the state, the forty-eighth state to enact such legislation. It provided for compulsory coverage, unlimited medical care, second injury fund and double compensation for minors injured while illegally employed.

MISCELLANEOUS LEGISLATION

Ambulance Calls.—Louisiana [97] provided regulations for the selling of ambulance insurance policies. Massachusetts [98] provided for the exemption from the requirements of the compulsory

73. Va., Laws 1948, c. 205.
74. Ky., Laws 1948, c. 169.
75. N. Y., Laws 1948, c. 438.
76. Va., Laws 1948, c. 68.
77. Mass., Laws 1948, c. 28.
78. Va., Laws 1948, c. 531.
79. Miss., Laws 1948, c.——, approved March 23, introduced as H. 5.
80. Miss., Laws 1948, c.——, approved April 10, introduced as H. 554.
81. Va., Laws 1948, c. 433.
82. Ky., Laws 1948, c. 144.
83. La., Acts 1948, Act No. 383.
84. Miss., Laws 1948, c.——, approved April 14, introduced as S. 453.
85. S. C., Acts 1948, Gov. Act. No. 892.
86. Mass., Laws 1948, c. 359.
87. N. J., Laws 1948, c. 110.
88. Miss., Laws 1948, c.——, approved April 14, introduced as S. 332.
89. La., Acts 1948, c.——, adopted May 20, introduced as S. Con. Res. 4.
90. La., Acts 1948, Act No. 171.
91. La., Acts 1948, Act No. 22.
92. N. J., Laws 1948, c. 53.
93. Mass., Laws 1948, c. 318.
94. Va., Laws 1948, c. 244.
95. Mass., Laws 1948, c. 159.
96. Miss., Laws 1948, c.——, approved April 13, introduced as H. 351.
97. La., Acts 1948, Act No. 458.
98. Mass., Laws 1948, c. 572.

motor vehicle liability insurance law of ambulances owned and operated by hospitals or other institutions supported wholly or in part by public or private donations for charitable purposes.

Animal Experimentation.—A Kentucky [82] law relating to license taxes in certain cities in the state, authorized the board of aldermen to provide license fees for the using, holding or exhibiting of any animal. Massachusetts [99] provided for the creation of a special commission to consider the advisability of licensing institutions capable of intelligent experimentation and of providing for supplying to licensed institutions unclaimed and unwanted animals which are held in public pounds. This commission is to investigate relative to the procurement and treatment of animals for medical experimentation and study.

Anti-Discrimination.—A number of proposals were considered in the legislatures which were intended to prohibit or prevent certain types of discrimination in connection with medical and hospital practice, but only two of these proposals were finally enacted. A Kentucky [100] law, relating to the training of Negro nurses and doctors, provided that any hospital may give instruction in nursing, medicine, surgery or other related courses of graduate grade or on the professional level, to Negroes if the governing body of the hospital, by a majority vote of its members, so elects. A New York [101] law amended the education law in relation to complaints against educational institutions for alleged discrimination in the admission of applicants.

Blood Plasma.—New York [102] amended the law relating to persons, firms and corporations procuring blood donors so as to eliminate the requirement that donors present a satisfactory physical examination certificate showing freedom from communicable disease.

Clinics and Dispensaries; Regulation.—Louisiana [103] provided an appropriation to the Louisiana State Board of Health to be used to match federal and local funds to provide for the construction and equipping of public health centers, including administrative offices, laboratories and clinics. Massachusetts [104] authorized the construction of a Springfield Municipal Hospital for the reception of persons having diseases dangerous to the public health, as a tuberculosis dispensary, as a hospital for the chronic sick, as a dental, medical and health clinic and as an infirmary for persons in need.

Departments or Boards of Health.—An Arizona [105] law created the office of director of the State Department of Public Health and set forth the eligibility requirements thereof, among which requirements are that the applicant must be a reputable physician licensed to practice in Arizona and a graduate of a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association. A Massachusetts [106] law increased the scope of the survey and study by the special commission studying and revising the laws relating to public welfare.

Divorce.—New York [107] amended the domestic relations law by providing that in actions to annul a marriage on the ground of insanity, the testimony of a physician attached to a state hospital in the department of mental hygiene who attended the patient in a professional capacity at such hospital, shall be taken.

Health Centers.—Missouri [108] authorized counties to levy a tax for the purpose of operating or maintaining public county health centers or institutions therein. A Virginia [109] law authorized the appropriation by certain municipalities of funds for the operation and maintenance of hospitals or health centers.

Medical Research Programs.—Kentucky [110] provided for the creation of a medical research commission to inaugurate a program of research in the fields of medicine, surgery and allied sciences, preventive medicine, control of diseases and all other features of medicine and surgery that affect the health and welfare of the people of the state. Massachusetts [111] enacted a resolution memorializing the Congress to enact legislation providing for the establishment of a National Science Foundation with the appropriation of sufficient funds to encourage scientific research to be conducted which shall be made available to the directors of the armed forces and insure national security in the future.

Medical Schools and Scholarships.—Massachusetts, New York, South Carolina and Virginia enacted legislation pertaining to medical education. Massachusetts [112] provided for the inspection of colleges, universities and medical schools approved for the purpose of medical education and for the withdrawal of such appproval in certain instances. One New York [113] law provided for the merger and consolidation into New York University of New York corporations authorized to establish, maintain or operate any hospital, infirmary, dispensary or clinic; another [114] provided for the establishment of a state university and directed such state university to formulate plans and make recommendations for the establishment of two health and medical centers as a part thereof. South Carolina [115] authorized the acquisition of land for a site for a teaching hospital in the city of Charleston for use by the Medical College of South Carolina. The Virginia [116] law resulted in the creation of a committee to study medical education in general in the state and the relation of medical education to the services that it renders to the people. A New York [117] law amended a recent law providing for the creation of a state university by, among other things, authorizing state aid to medical schools, research centers and similar institutions or facilities operating specified training or research programs or projects pursuant to contracts with the state university. Another New York [118] law amended a previous law creating a temporary state commission to examine into the need for the creation of another state university by requiring such commission to make a report to the governor on or before May 1, 1948. A South Carolina [119] law is a joint resolution giving legislative approval to a compact entered into by the states of South Carolina, Georgia, Florida, Alabama, Tennessee and other Southern states relative to the planning, acquisition, establishment and maintenance of jointly owned and operated regional educational institutions, among which is the Meharry Medical College of Nashville, Tenn. Mississippi,[120] South Carolina [121] and Virginia [122] enacted laws relating to medical or nursing scholarships. The Mississippi law provided for the appropriation of $510,000 to the state medical education board for the purpose of carrying out the provisions of the existing law relating to medical scholarships and loans. South Carolina provided for the establishment of eight scholarships at the Medical College of the State of South Carolina of the value of $75 per month plus tuition, conditioned on the recipient doing private general medical practice during one calendar year for each year of the scholarship in some rural community in the state designated by the State Board of Health. Virginia provided amendments to and reenactments of the law setting up annual medical scholarships at the Medical College of Virginia and the University of Virginia.

Mental Health Acts.—Rhode Island [123] provided for an act to extend and strengthen the mental health services in the state and designated the State Department of Social Welfare as the agency to cooperate with the federal government in this regard.

Physical Examinations.—Louisiana [124] prohibited employers from charging employees and job applicants for medical examinations or records when required by the employer as a condition of employment. Two Alabama [125] laws were enacted in 1947,

99. Mass., Resolves 1948, c. 76.
100. Ky., Laws 1948, c. 112.
101. N. Y., Laws 1948, c. 753.
102. N. Y., Laws 1948, c. 729.
103. La., Acts 1948, Act No. 492.
104. Mass., Laws 1948, c. 455.
105. Ariz., Laws 1948, c. 43.
106. Mass., Resolves 1948, c. 83.
107. N. Y., Laws 1948, c. 362.
108. Mo., Laws 1948, c.——, approved May 10, introduced as H. 482.
109. Va., Laws 1948, c. 266.
110. Ky., Laws 1948, c. 160.
111. Mass., Laws 1948, c.——, adopted February 19, introduced as H. 934.
112. Mass., Laws 1948, c. 413.
113. N. Y., Laws 1948, c. 789.
114. N. Y., Laws 1948, c. 695.
115. S. C., Acts 1948, Gov. Act No. 798.
116. Va., Laws 1948, c.——, adopted March 11, introduced as S.J.R. 27.
117. N. Y., Laws 1948, c. 698.
118. N. Y., Laws 1948, c. 5.
119. S. C., Acts 1948, Gov. Act No. 846.
120. Miss., Laws 1948, c.——, approved March 23, introduced as H. 386.
121. S. C., Acts 1948, Gov. Act No. 1116.
122. Va., Laws 1948, c. 528.
123. R. I., Laws 1948, c. 2113.
124. La., Acts 1948, Act No. 281.
125. (a) Ala., Laws 1947, Gov. Act 209; (b) Ala., Laws 1947, Gov. Act 247.

but too late to be included in the 1947 survey. One [125a] of them amended the law relating to blood testing for syphilis by providing that every person between the ages of 14 and 50 residing or living in the state shall have his blood examined for syphilis by an approved laboratory test at such time as shall be designated by the State Board of Health. The other [125b] required that all persons between the ages of 13 and 50 residing in the state have physical and roentgenographic examinations or be otherwise tested for tuberculosis during such periods or at such times as may be designated by the State Board of Health. This law further provided that if one member of a family shows a positive reaction to the test all other members of that family regardless of age shall be subject to the examination. Rhode Island [126] authorized every superintendent of schools to cause such further examinations to be made of school children as he shall deem necessary for the purpose of guarding against any further outbreaks of infantile paralysis within the schools of any city or town. Such examinations could include examinations of the legs and pedal extremities of such children by physicians, school nurses or persons qualified to make such examinations. New York [127] amended the law relating to the state athletic commission by creating in such commission a medical advisory board to prepare and submit to the commission for approval regulations and standards for the physical examination of professional boxers and wrestlers.

Surveys.—South Carolina [128] directed the Board of Naturopathic Examiners of the state to undertake immediately a study of the various licenses and personal qualifications of applicants heretofore licensed to practice naturopathy in the state and the propriety of cancelling any licenses erroneously obtained. The board was further directed to cancel immediately any licenses of licensees to practice naturopathy if the board in its discretion decided that the license should be cancelled for any reason, and in checking the qualifications of the licensees the board should take into consideration the information developed by the Law Enforcement Division of the state of South Carolina and such other information as the Law Enforcement Division may be able to obtain with reference thereto. The Board of Naturopathic Examiners was directed to submit to the General Assembly of South Carolina in 1949 a full and complete written report concerning the matter. A New York [129] resolution continued the special joint legislative committee making a survey and study of the social, educational and physical problems of persons afflicted with cerebral palsy. Louisiana [130] provided for the appointment of a commission to develop the facts and figures in relation to and a program for the rehabilitation of alcoholics. South Carolina [131] established a special committee for the purpose of studying and making an investigation into the need and feasibility of establishing an institution, either separately or in connection with any existing state institution, for the purpose of treating chronic alcoholics. Virginia [132] created within the Department of Health a division of alcohol studies and rehabilitation for the study of the problems of alcoholism, the treatment and rehabilitation of persons addicted to the excessive use of alcoholic beverages and the promotion of preventive and educational programs. Massachusetts [133] created a special commission to make a study of the subject of nonprofit hospital service corporations. Virginia [134] directed its advisory legislative council to make a thorough study of the methods and practices of corporations and associations engaged in furnishing hospital and medical service on the prepayment plan. Arizona [135] enacted a hospital survey and construction act for the purpose of conducting a survey of existing hospital facilities and a construction program for the building of additional needed facilities. The law provides for the appointment of an advisory survey and construction council, one member of which shall be chosen from a panel of four submitted by the Arizona medical association and another member of which shall be chosen from a panel of four submitted by the Arizona society of osteopathic physicians and surgeons. Louisiana [136] granted an appropriation to the state hospital board for conducting a hospital survey and construction program and a mental health program in the state of Louisiana. Michigan [137] amended the existing hospital survey and construction act by providing that any hospital receiving federal aid under the federal hospital survey and construction act shall comply with the minimum standards of maintenance and operation which the State Department of Public Health with the advice of the advisory hospital council shall promulgate. A Louisiana [138] resolution directed the Committee on Charitable Institutions to visit any and all of the charitable and eleemosynary institutions in the state and to make any necessary recommendations which it deems appropriate. A Louisiana [139] law resulted in the enactment of a Louisiana Health and Hospital Planning Act. This act authorized the State Hospital Board to adopt a construction program within the state and to prescribe minimum standards of maintenance and operation of hospitals which receive state or federal aid. It also required the appointment of a state advisory council and the adoption of a state mental health plan in cooperation with the national mental health act. New Jersey [140] created a commission to make a survey of all voluntary charitable hospitals throughout the state to determine what steps can be taken to relieve existing overcrowding and to furnish additional revenue for operating costs to relieve the burden now being carried by the voluntary charitable hospitals. A Massachusetts [141] law required the committee on insurance to make an investigation of the desirability or necessity of revising, recodifying and recommending any changes in and additions or amendments to the laws relating to group life insurance and group accident and health insurance. Another Massachusetts [142] law provided for a special commission to study and investigate relative to preventable diseases and to the establishment of full time local health units throughout the commonwealth. New York [143] created a commission to make a study of correction and mental hygiene at Sing Sing prison to develop information as to the underlying causes of sex crimes and the development of treatment for persons committing such crimes.

Miscellaneous.—An Alabama [144] law enacted in 1947, but too late to be included in the 1947 survey, amended the law relating to the state income taxes by authorizing individual income taxpayers a deduction of expenses paid during the taxable year, not compensated for by insurance or otherwise, for medical care of the taxpayer, his spouse or his dependents to the extent that such expense exceeds 5 per cent of the gross income of the taxpayer. A Maryland [145] law exempted from the retail sales tax act the sales of crutches, artificial limbs, artificial eyes, artificial hearing devices and corrective eyeglasses, when they are designed to be worn on the person of the owner or user, and the sales of orthopedic appliances and wheelchairs. Mississippi [146] authorized the incorporation of organizations for medical and surgical purposes or for establishing, maintaining and operating clinical, pathologic, medical or surgical research laboratories or the like. South Carolina [147] authorized any department, commission, board or officer of the state to have microfilms made of any part of its records and provides that microphotographs or microphotostatic copies of such records may be introduced in evidence in any court of law in the state to the same extent as the original records would have been. A Virginia [148] law named the State Corporation Commission as an agency to require reports, estimates, facts and other data from those agencies operating on a statewide basis that exist primarily for the solicitation of funds from the public for medical care or medical research.

126. R. I., Laws 1948, c. 2103.
127. N. Y., Laws 1948, c. 754.
128. S. C., Acts 1948, c.——, adopted April 10, introduced as H. 1413.
129. N. Y., Laws 1948, c.——, adopted March 8, introduced as C.C.H.A. Res. 161.
130. La., Acts 1948, Act No. 318.
131. S. C., Acts 1948, c.——, adopted April 10, introduced as H. 1803.
132. Va., Laws 1948, c. 544.
133. Mass., Resolves 1948, c. 95.
134. Va., Laws 1948, c.——, adopted March 13, introduced as H.J.R. 41.
135. Ariz., Laws 1948, c. 33.
136. La., Acts 1948, Act No. 183.
137. Mich., Acts 1948, Public Act 14.
138. La., Acts 1948, c.——, adopted May 21, introduced as H. Res. 6.
139. La., Acts 1948, Act No. 65.
140. N. J., Laws 1948, J.Res.c. 3.
141. Mass., Laws 1948, c.——, adopted June 14, introduced as H. 2377.
142. Mass., Resolves 1948, c. 78.
143. N. Y., Laws 1948, c. 609.
144. Ala., Laws 1947, Gov. Act 693.
145. Md., Laws 1948, c. 54.
146. Miss., Laws 1948, c.——, approved April 13, introduced as H. 282.
147. S. C., Acts 1948, Gov. Act No. 1193.
148. Va., Laws 1948, c. 403.

Washington Letter

(From a Special Correspondent)

Nov. 3, 1948.

Committee on Growth Re-Formed

Dr. Milton C. Winternitz, professor of pathology at Yale University School of Medicine, has been appointed chairman of the Committee on Growth, National Research Council (Division of Medical Sciences). He succeeds Dr. C. P. Rhoads, director of Memorial Hospital (New York City), who remains a member of the committee. As reconstituted for 1948-1949, the Committee on Growth has added several experts to its various scientific panels, and two of its six sections have new chairmen. They are Dr. Arnold D. Welch, Western Reserve University School of Medicine, for chemotherapy, and Dr. Willard M. Allen, Washington University School of Medicine, for clinical investigations. They succeed Drs. Perrin H. Long (Johns Hopkins) and Allan T. Kenyon (University of Chicago), respectively.

American Legion Publishes "Medical Advisors Manual"

Just published by American Legion offices in Washington is the "Medical Advisors Manual," a 96 page booklet designed to guide and aid physicians who are concerned with veterans' medical problems. It includes special articles by Drs. Charles W. Mayo ("Medical Education"), Winfred Overholser ("Post War Trends in Psychiatry"), Howard A. Rusk ("Medical Rehabilitation"), Waltman Walters and John V. Triolo ("War and Post War Surgery") and C. Raymond Wells ("Dentistry").

In the booklet's introduction, Dr. Leonard G. Rowntree, chairman of the Legion's National Medical Advisory Board, writes: "With its nationwide network of medical advisors, the American Legion is in a better position than ever before to become the champion of the health of the people and to elevate the national health to a higher plane than ever in the past. As medical advisors to the American Legion, it is our bounden duty to keep the medical service for the veteran at its peak and also to aid the American Legion, and the American Medical Association, in their national campaign for improvement in physical and mental health."

Nuclear Science Abstracts

Schools, hospitals, laboratories and other institutions interested in atomic medicine should take note of the fact that the publication *Atomic Energy in Biophysics, Biology and Medicine* has been succeeded by a semimonthly special edition of *Nuclear Science Abstracts*, also published by Atomic Energy Commission. First issue (vol. 1, no. 6) of the new publication made its appearance earlier this month, carrying such subject categories as Biological Effects of Radiation, Health Protection, Radiotherapy and Tracer Applications. The volume, and those which will follow at semimonthly intervals, contains abstracts of declassified AEC reports and articles pertaining to atomic energy which have been published in domestic and foreign literature.

Nuclear Science Abstracts, as well as AEC declassified documents, are available for sale by Document Sales Agency, P. O. Box 62, Oak Ridge, Tenn.

Medical Advisers Seek Over-All National Health Policy

National Security Resources Board, in a statement issued following the first meeting of its medical advisory committee on September 25, announced that NSRB Chairman Arthur M. Hill had been urged by the group to assume administration of "an over-all national health policy." Both military and civilian medical problems, with particular reference to situations that might arise in event of war, were discussed by the advisory group, whose chairman is Dr. James A. Crabtree, director of the board's medical division. Members of the committee are Drs. William P. Shepard, San Francisco; A. C. Bachmeyer, Chicago; James C. Sargent, Milwaukee; Edward L. Bortz, Philadelphia; Michael E. DeBakey, New Orleans, and Percy T. Phillips, New York.

Professional Leaders Invited to Military

Representatives of American medicine are expected to be among the professional, clerical, labor, educational, press and industrial leaders who will attend an unusual conference, announced by Secretary of Defense James Forrestal, scheduled to open in the Capital November 8. Its purpose will be to familiarize the public with attainments of the military establishment since Army, Navy and Air Force were integrated last year under Secretary Forrestal. From November 8 to 12, the conferees will meet in closed sessions to hear addresses by him, the three Department Secretaries and top ranking officials, both military and civilian, of the National Military Establishment. Then they will be flown to observe two day field demonstrations by Army, Navy and Air Force. These will be conducted, respectively, at Fort Benning, Ga., and the Pensacola and Eglin air bases in Florida.

International Medical Conferences

The year 1948, which has been the biggest postwar year for international conferences, will witness several important medical gatherings during its last quarter, according to a list compiled by the Department of State. Earlier this month conferences of the Pan American Sanitary Organization opened in Mexico City, coincident with the sixth meeting of health directors of the twenty-one American Republics. On October 15 the World Health Organization's Expert Committee on Venereal Disease will convene in Paris. The Fifth Inter-American Congress of Surgery opens in La Paz, Bolivia, October 17. Eight days later the executive board of World Health Organization will meet in Geneva. November conferences include the Second Inter-American Congress on Brucellosis at Mendoza, Argentina. December 1-8 will witness the First Pan American Congress of Pharmacy at Havana, Cuba.

Coming Medical Meetings

American Medical Association Interim Session, St. Louis, Municipal Auditorium, Nov. 30-Dec. 3. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Conference of State Secretaries and Editors, St. Louis, Hotel Statler, Nov. 28-29. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

National Medical Public Relations Conference, St. Louis, Hotel Statler, Nov. 27. Mr. Lawrence W. Rember, 535 N. Dearborn St., Chicago 10, Director.

American Academy of Dermatology and Syphilology, Chicago, Palmer House, Dec. 5-9. Dr. Earl D. Osborne, 471 Delaware Ave., Buffalo, Secretary.

American Academy of Pediatrics, Atlantic City, Chalfonte-Haddon Hall, Nov. 20-23. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Association of Railway Surgeons, Chicago, Nov. 21-23. Dr. Raymond B. Kepner, 547 W. Jackson Blvd., Chicago 6, Secretary.

American Clinical and Climatological Association, Hot Springs, Va., The Homestead, Nov. 8-10. Dr. James Bordley III, Bassett Hospital, Cooperstown, N. Y., Secretary.

American Public Health Association, Boston, Nov. 8-12. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

Association for Research in Nervous and Mental Diseases, New York, Waldorf-Astoria Hotel, Dec. 10-11. Dr. Clarence C. Hare, 700 W. 168th St., New York 32, Secretary.

Association of Military Surgeons of the United States, San Antonio, Texas, Nov. 11-13. Dr. James M. Phalen, Army Institute of Pathology, Washington 25, D. C., Secretary.

Eastern Section, American Federation for Clinical Research, Philadelphia, Temple University School of Medicine, Dec. 4. Dr. J. Edward Berk, Temple University School of Medicine, Philadelphia, Chairman.

International College of Surgeons, U. S. Chapter, St. Louis, Kiel Auditorium, Nov. 16-19. Mr. Ralph E. Osborne, 1516 Lake Shore Drive, Chicago, Business Secretary.

Inter-State Postgraduate Medical Association of North America, International Medical Assembly, Cleveland, Public Auditorium, Nov. 9-12. Dr. Tom B. Throckmorton, 406 Sixth Ave., Des Moines, Iowa, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 10-12. Dr. J. Basora Defillo, Box 3866, Santurce, Secretary.

Radiological Society of North America, San Francisco, Dec. 5-10. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse 2, N. Y., Secretary.

Southern Psychiatric Association, Dallas, Texas, Hotel Adolphus, Dec. 6-7. Dr. Newdigate M. Owensby, 384 Peachtree St. N.E., Atlanta, Ga., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 7-9. Dr. Alfred Blalock, Johns Hopkins Hospital, Baltimore 5, Secretary.

Western Surgical Association, St. Louis, Dec. 2-4. Dr. Warren H. Cole, 1853 W. Polk St., Chicago 12, Secretary.

GOVERNMENT SERVICES

NAVY

PERSONALS

The Bureau of Medicine and Surgery announces the retirement of Captain Frederick L. McDaniel, director of the professional division of the Bureau of Medicine and Surgery, after more than thirty years' service.

Captain Frank M. Cannon, San Rafael, Calif., of the Medical Reserve Corps has volunteered for recall to active duty and will be assigned to the Naval Dispensary, San Francisco.

Commander Thomas F. Dowd, of Philadelphia, of the Medical Reserve Corps has been recalled to active duty and ordered to postgraduate instruction under the new Navy Graduate Medical Training Program for a residency in obstetrics and gynecology at the Naval Hospital, Philadelphia.

Lieut. Comdr. Frederick B Carlson, Ashtabula, Ohio, on inactive reserve status, has been commissioned in the Medical Corps of the Regular Navy.

Lieutenant Marcus L. Howard, Dawsonville, Texas, has been recalled to active duty at his own request from an inactive status in the Reserve Corps.

Lieutenant (jg) James B. Smith, MCR, New York, has reported to the Naval Hospital, San Diego, Calif., for his first active duty.

Commander F. X. Banvard, MC, Retired, Baltimore, has volunteered for recall to active duty and will be assigned to the Naval Gun Factory, Washington, D. C.

The following Medical Reserve Corps officers have reported for their first active duty for postgraduate instruction under the new Graduate Medical Training Program: Lieutenants (jg) James B. Flanagan, Tyler, Texas, residency in internal medicine at John Gaston Hospital, Memphis, Tenn.; James H. Wells, Springfield, Mo., residence in neuropsychiatry at Indianapolis General Hospital, Indianapolis.

AWARDS AND COMMENDATIONS

Captain Herbert G. Shepler

In a ceremony in the Office of the Surgeon General October 11, Rear Admiral C. A. Swanson, in behalf of the Commander-in-Chief of the United States Pacific Fleet, presented a letter of commendation to Captain Herbert G. Shepler, M.C. The citation read as follows:

For meritorious conduct in the performance of his duties as senior medical officer on the U. S. S. *Hancock* during operations against the enemy from Oct. 10, 1944, to Aug. 15, 1945. His resourcefulness in handling large numbers of casualties resulting from enemy action contributed materially to the ability of his ship to continue offensive operations against the enemy. His leadership and skilful training of his men provided a highly effective medical organization which greatly enhanced the fighting effectiveness of his ship. His performance of duty was outstanding and his conduct was at all times in keeping with the highest traditions of the United States Naval Service.

Dr. Shepler was graduated from Ohio State University College of Medicine and entered the medical corps of the Navy June 25, 1929.

PUBLIC HEALTH SERVICE

FIRST PUBLIC HEALTH ATTACHÉ APPOINTED

Dr. Morris B. Sanders has been appointed as the first Public Health Attaché to represent the United States abroad. Dr. Sanders has been assigned to the embassies at Paris, Brussels and The Hague, with residence in Paris. Among his duties will be the collection of information from those countries on health, medical research, prevalence of diseases of interest to the United States and the extent of health insurance in their programs; familiarizing himself with the administration and technic in the national public health services abroad, and identifying himself with the public health and medical research of the countries to which he is assigned.

Dr. Sanders, a graduate of Harvard Medical School, has since 1932 worked in France, serving on the staff of the American Hospital in Paris, chiefly in the field of anesthesia. He joined the U. S. Public Health Service reserve as medical director May 24, 1948, on which day he was detailed to the State Department. During the war he was anesthetist for the American Hospital, used as a French Auxiliary Hospital, and was a member of the Commission for Oxygen Therapy for the French Armies under Dr. Alexis Carrel. He was held in a German concentration camp from December 1941 until April 1942, and when released returned to work as an anesthetist at the French Red Cross.

NATIONAL INSTITUTE OF DENTAL RESEARCH

Under the authority of an Act of Congress the Federal Security Administrator has announced the establishment of the National Institute of Dental Research, which will conduct a broad attack on dental diseases and related diseases of the mouth. Congress has authorized appropriations of $750,000 a year for this program, which will include research in the Institute's laboratories at Bethesda, Md.; financial grants to outside institutions for research and training of professional personnel and fellowships and traineeships in the Institute to promote training and research in dental diseases. The director of the new Institute will be H. Trendley Dean, D.D.S., who has been Director of the Dental Research Section of the National Institutes of Health of the Public Health Service.

MISCELLANEOUS

TWO NEW ISOTOPES FOR RESEARCH

Limited quantities of two important new research materials—hydrogen-3 and helium-3—have been added to the list of isotopes being distributed by the United States Atomic Energy Commission to scientists and research institutions throughout the United States, it was announced by the Atomic Energy Commission. Hydrogen-3, also called tritium, is a radioactive gas with a half-life of about twelve years. As the only radioisotope of hydrogen, it should prove of special value as a "tracer" in medical, biologic and chemical research. When combined with oxygen, tritium can also be used as the valuable research tool known as heavy heavy-water. Helium-3, a stable isotope, is only one-millionth as abundant in nature as ordinary helium. Now that it is available for laboratory study, it may provide valuable clues to the still largely unknown properties of the helium nucleus. Because of the extreme simplicity of their atomic nuclei, both materials are readily adaptable to investigations in support of basic atomic theory. Already, important knowledge of the fundamental forces which hold the atomic nucleus together has been gained in experiments with tritium and helium-3 by Dr. Herbert Anderson and Dr. Aaron Novick at the Atomic Energy Commission's Argonne National Laboratory, Chicago, where the new isotopes are produced.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Art Exhibit.—The first postwar exhibit of the Los Angeles Physicians' Art Society will be held November 15-30 in the lounge of the Los Angeles County Medical Association. Paintings, sculptures, pottery, photographs and other works of art should be received at the association not later than November 12. The awards will be presented on the evening of November 19.

CONNECTICUT

Society News.—At the recent meeting of the Connecticut Cancer Society at Waterbury, Dr. Creighton Barker, New Haven, executive secretary of the Connecticut State Medical Society, was elected president, and Dr. Alfred L. Burgdorf, Hartford, was made chairman of the medical advisory committee.

Rheumatic Fever and Cardiac Program.—The Rheumatic Fever and Cardiac Program of New Haven begins its second year with an expanded program to combat heart disease. A cardiac registry of 900 New Haven school children to be examined has been compiled by the bureau of nursing of the New Haven Department of Health. These school children are to be examined and referred to private physicians for follow-up or to the clinic facilities. The New Haven Rheumatic Fever and Cardiac Program was established a year ago by the Connecticut State Department of Health, Department of Pediatrics, Yale University School of Medicine, and the City Health Department (THE JOURNAL, Oct. 11, 1947, p. 363).

FLORIDA

Personal.—Dr. T. Elam Cato, Miami Beach, director of the Dade County Health Department, was recently elected president of the Florida Public Health Association.

Blood Bank and Research Foundation.—The building housing the Dade County Blood Bank and its Medical Research Foundation was dedicated on Labor Day in Miami. The blood bank is designed to provide for the collection of as much as 400 bottles of blood a day in an emergency. Research in bacteriology, biochemistry, immunology and hematology will be carried out in the new research building. Both the blood bank and the foundation are sponsored by the Dade County Medical Association, and their direction will be under the control of technical committees drawn from its membership.

ILLINOIS

Personal.—Dr. William L. McNamara, Hines, has been appointed full time director of the pathology department of Memorial Hospital, Elmhurst, Ill. Dr. McNamara is assistant professor of pathology at Northwestern University Medical School.

Conference at Rockford.—A graduate Conference for the First Councilor District of the Illinois State Medical Society will be held at the Hotel Faust, Rockford, November 10, 2 p. m., under the auspices of the state society. Chicago physicians participating are:

Henry G. Poncher, Therapy in Infancy and Childhood.
Ralph B. Bettman, Intrathoracic Surgery.
Paul S. Rhoads, Inhalation of Penicillin Dust.
Percy E. Hopkins, Voluntary Prepayment Medical Care.

Dr. Percival Bailey, Chicago, will speak at the dinner on "Japanese B. Encephalitis." The First Councilor District embraces the county medical societies of Boone, Carroll, DeKalb, Jo Daviess, Kane, Lake, McHenry, Ogle, Stephenson and Winnebago.

Chicago

Annual Lectureship.—The Phi Lambda Kappa Fraternity at the University of Illinois College of Medicine has established an annual lectureship. The initial lecture, on "Behavior and Neurosis," was given at the college October 27 by Dr. Jules H. Masserman, assistant professor of nervous and mental diseases at Northwestern University Medical School.

Research on Alcoholism.—The Research Council on Problems of Alcoholism, an associate of the American Association for the Advancement of Science, has granted $4,826 to the Chicago Committee on Alcoholism for the conduct of research work in a Chicago institution. This is the third grant made this year by the council, the others being to Cornell University Medical College, New York, $30,000 underwriting the second year of a five year project, and $20,000 to New York University College of Medicine-Bellevue Hospital.

University Appointments.—Dr. Robert C. Berson of Rye, N. Y., has been appointed assistant dean of the University of Illinois College of Medicine and assistant director of clinics for the university hospitals. Dr. Berson, a graduate of Vanderbilt University School of Medicine, Nashville, 1931, has been an attending physician at the United Hospital, Port Chester, N. Y. He was attached to the 300th General Hospital during the war. Dr. George R. Minor of Charlotesville, Va., has been appointed assistant professor of surgery. A graduate of the University of Virginia Department of Medicine, Charlottesville, 1940, Dr. Minor served as an instructor in surgery at the University of Michigan Medical School, Ann Arbor, from 1947-1948.

Survey of Q Fever.—Representatives of management and labor in the meat and dairy industries met at the health department recently to arrange for the collection of 1,000 blood samples for a survey of Q fever in Chicago. The disease appears to be an occupational hazard to livestock workers. For the survey the Chicago City Health Department teams are collecting blood samples from packing house workers, slaughter house workers, rendering plant workers and workers on dairy farms, at raw milk receiving stations and at pasteurization plants. Q fever was first reported in Australia in 1937. Although no cases diagnosed as Q fever were reported here in 1947 or in 1948 to date, there were 30 cases reported among Chicago packing house workers in 1946.

MASSACHUSETTS

Personal.—Dr. Theodore Fischer-Galati, Lawrence, has been reinstated as professor of ophthalmology at the University of Rome, Italy. He expects to lecture next spring on American Contributions in the Advancement of Ophthalmology before returning to the United States to practice.

Frances Stern Scholarship Fund.—The Frances Stern Scholarship Fund has been established at Tufts College Medical School, Boston, in honor of Miss Frances Stern, an authority in the field of nutrition who died last year. Tufts College, in recognition of the high standards she set, is now granting a master's degree to those who satisfactorily complete a new course of study in nutrition and dietetics in conjunction with the field work completed at the Frances Stern Food Clinic. Contribution to the fund should be sent in care of Boston Dispensary, 25 Bennet Street, Boston.

MINNESOTA

Personal.—On a recent trip to South America Dr. Albert C. Broders, Mayo Clinic, Rochester, was made an honorary member of the Faculty of Biology and Medical Sciences of the University of Chile; he is one of five North Americans to receive this honor.——Dr. Philip S. Hench, Rochester, has left for Europe to deliver the Samuel Hyde Memorial Lecture at the Royal Society of Medicine in London and the Heberden Oration before the Heberden Society in London. He will also address the Norwegian and Danish rheumatism associations and will speak in Norway.

Report of Cancer Detection Center.—The University of Minnesota reports that more than one half of the 957 persons examined at the Cancer Detection Center in Minneapolis during the first seven months of its operation had abnormalities requiring medical attention, including 15 definite cases of cancer, 235 precancerous lesions, 131 benign tumors, 270 nontumorous but abnormal conditions and 40 suspicious tumors. About 4,000 are waiting for appointments at the center. Persons requiring medical attention are referred to their personal physicians for treatment. A registration fee of $5 is charged unless the person is unable to pay. A project of the university's medical school, the Cancer Detention Center is financed in part by the Minnesota state division of the American Cancer Society, the National Cancer Institute of the U. S. Public Health Service and the university's malignant disease research fund.

NEBRASKA

Personals.—A parade was held recently at the Nemaha County Fair to honor Dr. Isaiah W. Irvin, a general practitioner and former mayor of Auburn.——The investiture of Dr. Adolph Sachs, Omaha, as Knight Commander, with Star, of Saint Gregory the Great, conferred by Pope Pius XII, is to be conducted by the Archbishop of Omaha, the Most Reverend Gerald T. Bergan, November 19 at Hotel Fontenelle, Omaha at 7:30 p. m.

Hospital News.—Ground was broken September 13 for a one hundred and thirty-five bed addition to St. Joseph's Hospital, Omaha. The five story addition, to cost about $1,686,460, will be called the Our Lady of Victory unit, and its facilities will be devoted to the care of nervous and mental patients.

NEW JERSEY

Public Health Week.—Under the sponsorship of the Medical Society of New Jersey, its twenty-one component county medical societies, its woman's auxiliary and the local and state health departments, Public Health Week will be celebrated in New Jersey November 8-12. Public speakers, forums, radio talks, newspaper features and motion pictures will make up the program. An effort will be made to interpret the advances in medical science to the people.

NEW YORK

Graduate Assembly in Anesthesiology.—The New York State Society of Anesthesiologists will hold its third graduate assembly at the Hotel New Yorker, New York, December 9-10. Each panel will be devoted to teaching fundamental subjects related to clinical applications. Out of state members of the faculty include Drs. Cecil K. Drinker, Boston; Isidor S. Ravdin, Philadelphia; James C. White, Boston; Maurice H. Seevers, Ann Arbor, Mich.; Archibald R. McIntyre, Omaha, Neb., and John C. Krantz Jr., PH.D., Baltimore.

Graduate Lectures.—The Medical Society of the State of New York and the New York State Department of Health have arranged the following graduate lectures: The Alleghany County Medical Society meeting at the Hotel Belmont in Belmont November 11 at 2 p. m. will hear Dr. Henry C. Shaw, Rochester, speak on "Common Diseases of the Skin." On November 18 Glens Falls Academy of Medicine will hear Dr. Linn J. Boyd, New York, speak on "Pulmonary Embolism" at the Crandall Library, Glens Falls, at 8:30 p. m. Four lectures have been arranged for the Nassau County Medical Society on Thursday afternoons at 4 p. m. at the Nassau Hospital Auditorium, Mineola:

Nov. 11, Herman Goodman, New York, The Prescription for the Skin; General Principles in Prescription.
Nov. 18, Stuart L. Vaughan, Buffalo, Diagnosis and Treatment of the Anemias.
Dec. 2, George E. Anderson, New York, Detection in Diabetes.
Jan. 27, Richard S. Gubner, New York, Newer Concepts and Therapy of Hypertension.

New York City

Diabetes Association Meeting.—The New York Diabetes Association, Inc., will hold an open meeting sponsored by the Committee on Internal Medicine at the New York Academy of Medicine November 12 at 8:30 p. m. Dr. Jerome W. Conn, associate professor of internal medicine at the University of Michigan Medical School, Ann Arbor, will speak on metabolic effects of pituitary adrenocorticotropic hormone. Drs. George E. Anderson, Jacques L. Gabrilove and E. Abbie I. Knowlton of New York will take part in the discussion.

Industrial Health Conference.—The Commerce and Industry Association of New York, Inc., and New York's doctors and businessmen will hold a health conference December 1 in cooperation with the Institute of Industrial Medicine of the New York University–Bellevue Medical Center and medical organizations. Speakers at the meeting, which will be held at the headquarters of the association, 233 Broadway, include Drs. Edward J. Steiglitz, Washington, D. C.; Harry S. Mustard, New York; Royd R. Sayers, Washington, D. C.; John J. Wittmer, New York, and Dean Thorndike Saville, New York. Dr. Anthony J. Lanza of the Institute of Industrial Medicine will serve as chairman.

Lectures for Laymen.—The New York Academy of Medicine will present its fourteenth series of Lectures to the Laity on "The Future in Medicine" beginning November 11 and extending through Feb. 10, 1949, at the academy, 8:30 p. m. Admission to the lectures, which are broadcast by WNYC, is free.

Nov. 17, Mr. Robert P. Patterson, New York, The Linsly R. Williams Memorial Lecture: Some Problems in Law and Medicine.
Dec. 9, Ephraim Shorr, New York, The Endocrines: Masters or Servants?
Dec. 23, Leo Alexander, Boston, The One Hundredth Anniversary Discourse of the New York Academy of Medicine: Science Under Dictatorship.
Jan. 13, William C. Boyd, Ph.D., Boston, Blood and Man.
Jan. 27, John R. Dunning, Ph.D., New York, The Future of Nuclear Energy.
Feb. 10, George E. Gardner, Boston, The George R. Siedenburg Memorial Lecture: The Criminal in Our Midst.

OHIO

Professor Lauda to Lecture.—Ohio State University has invited Dr. Ernst von Lauda, professor of medicine and director of the First Medical Clinic of the University of Vienna, as a visiting professor in medicine beginning about Jan. 8, 1949. The university is arranging a speaking tour for him from January 15 to March 1. The titles of his lectures will be Differential Diagnosis of Various Types of Liver Cirrhosis, Primary Ligurias, Pathogenesis of Tetany, Proctalgia Fugax (rectal neuralgia), Dyspragia Arteriosclerotica Intestinalis Intermittens (abdominal angina), Differential Diagnosis and Therapy of Enteritis and Ulcerative Colitis, Claudicatio Venosa, and Anemia, Type Lederer.

PENNSYLVANIA

Society Election.—At the annual meeting of the Pennsylvania Psychiatric Society in Philadelphia October 7, Dr. Thomas A. Rutherford, Waymart, became president; Dr. Harold L. Mitchell, Pittsburgh, president elect, and Dr. Philip Q. Roche, Philadelphia, secretary-treasurer. The society voted to make formal application to the Council of the American Psychiatric Association for recognition as the district branch society of the association for Delaware and Pennsylvania.

Philadelphia

Personal.—Dr. Edwin J. Fellows, associate professor of pharmacology at Temple University School of Medicine, has been appointed head of the pharmacologic laboratories at Smith, Kline and French Laboratories. Dr. Fellows will retain his professorship at the university, where he has been on the faculty since 1935.

University Appointment.—Dr. Arno E. Town, clinical professor of ophthalmology, New York University College of Medicine, was appointed professor of ophthalmology at the Jefferson Medical College July 1, succeeding Dr. Charles E. Shannon, Philadelphia, who retired on that date. Dr. Town was graduated from Jefferson Medical College in 1926.

Meeting of Resident Physicians.—The annual banquet of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital will be held December 7 at the Penn Sheraton Hotel. The guest of honor will be Dr. Edward J. G. Beardsley, Philadelphia. For reservations address the secretary-treasurer, Dr. Robert C. McElroy, 133 S. 36th St., Philadelphia 4.

Ordinance on Air Pollution Control.—An ordinance establishing a Division of Air Pollution Control in the Bureau of Health of Philadelphia has been approved. The ordinance also establishes within the bureau an Air Pollution Control Board of seven members, who will receive no compensation. The board is to assist hotel, apartment, commercial and industrial building owners in maintaining proper combustion of fuel. Fines and imprisonment are provided for those who violate the provisions of the ordinance.

UTAH

State Medical Election.—Dr. Orin A. Ogilvie, Salt Lake City, was installed as president of the Utah Medical Association at its annual meeting in September. Dr. Conrad H. Jenson, Ogden, was named president elect, and Dr. Leslie B. White of Salt Lake City was relected treasurer. The next annual meeting will be held in Salt Lake City.

Dr. Branch to Head Psychiatry Department.—Dr. C. H. Hardin Branch, until recently executive director of the Institute of Pennsylvania Hospital at Philadelphia, has been appointed professor and head of the newly formed department of psychiatry at the University of Utah College of Medicine, Salt Lake City. Dr. Branch, a graduate of Tulane University of Louisiana School of Medicine, New Orleans, 1935, assumed his duties Oct. 1, 1948.

WISCONSIN

Society News.—At a meeting of the University of Wisconsin Medical Society October 13, Dr. Arthur B. Appleton, professor of anatomy, University of London, discussed "Bronchopulmonary Segments and Variations in Pulmonary Vascular Patterns."

Dr. Joslin to Give Memorial Lecture.—The annual Arthur S. Loevenhart Memorial Lecture will be given by Dr. Elliott P. Joslin of Boston, on "Observations on Diabetes Mellitus," in the auditorium of the Service Memorial Institutes Building, University of Wisconsin Medical School, Madison, November 10 at 8 p. m. Dr. Joslin has long been associated with Harvard University Medical School, where he is an emeritus professor of medicine. He comes to Madison under the sponsorship of the Wisconsin chapter of Phi Delta Epsilon, medical fraternity. Dr. Loevenhart was professor of pharmacology at the state medical school for many years prior to his death, April 19, 1929.

GENERAL

Inter-American Congress on Brucellosis.—The second Inter-American Congress on Brucellosis will be held November 17-20 at Mendoza, Argentina and November 22-26 at Buenos Aires, Argentina under the auspices of the Argentine government and the Pan American Sanitary Bureau. Countries represented on the program are Colombia, Mexico, Peru, Venezuela, Chile, Puerto Rico, Argentina and the United States.

Prof. Baitsell Appointed Editor of Science Magazines.—George A. Baitsell, Ph.D., professor of biology at Yale University, New Haven, has been appointed chairman of the editorial board and editor-in-chief of *Science* and *The Scientific Monthly*. The position of editor of *Science* has been vacant since the death of Willard L. Valentine in 1947. Frank L. Campbell, Sc.D., Washington, D. C., resigned as editor of *The Scientific Monthly* this year.

Death Rate Slightly Increase.—The crude death rate for the United States for 1947 was, according to the National Office of Vital Statistics in the U. S. Public Health Service, 10.1 deaths per 1,000 estimated population. This was the second lowest rate ever recorded for the United States, the lowest rate having been 10.0 in the year 1946. A total of 1,445,370 deaths was registered in the United States during 1947, an increase of 49,753 over the number recorded in 1946.

Gastric Cancer Conference.—A gastric cancer conference, sponsored by the National Cancer Institute, will be held in San Francisco December 13-14, at Stanford University Medical School. The meeting is open to all members of the medical profession and includes among the speakers Drs. John H. Morton, Rochester, N. Y.; George N. Papanicolaou, New York, and Leo G. Rigler, Minneapolis. Information may be obtained from Dr. Morris K. Barrett, Secretary, Gastric Cancer Committee, National Cancer Institute, Bethesda 14, Md.

Diamond Jubilee of Nursing.—The American Nurses' Association of 162,000 registered nurses is sponsoring a Diamond Jubilee during Nurses Progress Week, November 14-20. The memory of Linda Richards, America's first professional nurse, is to be especially honored. Celebrations throughout the country will help focus attention on the improvement of nursing service through the improvement of schools of nursing, economic security for all nurses and adequate licensure laws. It is expected also to aid the recruitment of 40,000 additional students for approved schools of nursing.

Research in Cardiovascular Disease.—The American Heart Association has announced that fellowships for research in cardiovascular disease are available. Application blanks may be obtained from the Medical Director, American Heart Association, 1775 Broadway, New York 19, New York. The aim of the association is to develop a continuing program of research in the field of cardiovascular disease including rheumatic heart disease. Its program will be coordinated with that of the National Heart Institute of the National Institutes of Health, U. S. Public Health Service and the Life Insurance Medical Research Fund.

Incidence of Poliomyelitis.—A total of 1,122 cases of poliomyelitis was reported during the week ended October 20, as compared with 1,207 for the preceding week, a decrease of 85 cases as compared with a decline of 322 cases the preceding week, according to the U. S. Public Health Service. The total to date is 21,515, as compared with 20,686 for the corresponding period of 1946, and for the corresponding week in 1946 a total of 1,042 cases. During the remainder of the year 1946, a total of 4,578 cases was reported. Decreases were reported in most of the states, the principal exceptions being increases in Wisconsin, from 35 to 57, and in California, from 223 to 234, probably as the result of inclusion of delayed reports.

Medical Director of Multiple Sclerosis Society.—Dr. Cornelius H. Traeger, New York, has been appointed medical director of the National Multiple Sclerosis Society. Dr. Traeger, a graduate of Columbia University College of Physicians and Surgeons, New York, is attending physician and co-chief of Arthritis Clinic at the Hospital for Special Surgery and consulting attending physician in internal medicine and chief of the Arthritis Clinic at Roosevelt Hospital. Dr. Traeger will divide his time for the present between his practice and the medical activities of the society, which, since its inception two years ago, has financed seven projects on the cause and treatment of multiple sclerosis. Among these are two multiple sclerosis research clinics, in Boston and in Albany, N. Y. It is planned to finance other projects already approved by the society's Medical Advisory Board when funds are available. Dr. Traeger, as medical director, will administer and coordinate medical research in this field.

Meeting of UNESCO Commission.—In announcing the recent Boston conference of the United States National Commission for the United Nations Educational, Scientific and Cultural Organization, it was stated that more than $150,000,000 in money, materials and equipment was sent abroad in 1946 and 1947 for educational reconstruction in ravaged lands and that thousands of students and teachers, including scores of scientists, have been exchanged with countries all over the world to spread knowledge and international understanding. One hundred teachers were brought to the United States in a single "exchange," and 70 foreign students were provided with technical training through a single institution. The National Commission has sought to stimulate these programs through many national organizations and various types of conferences. The chairman of the National Commission is Milton S. Eisenhower, president of Kansas State College, who gave the opening address at the Boston conference.

Meeting of the Industrial Hygiene Foundation.—Health at Work is to be the subject of the annual meeting of the Industrial Hygiene Foundation of America at Mellon Institute, Pittsburgh, November 18. The program is as follows:

Mr. Andrew Fletcher, New York, chairman of the foundation, and Mr. John F. McMahon, Pittsburgh, managing director, How Big is Our Job?
Thomas Parran, Pittsburgh, Good Health Is Good Business.
John Z. Bowers, Baltimore, Atomic Energy, Industrial Health Implications.
Mr. Theodore F. Hatch, Mr. W. C. L. Hemeon and Dr. C. Richard Walmer, Pittsburgh, What the Foundation is Doing.
William P. Yant, Sc.D., Pittsburgh, Industrial Hygiene Codes and Regulations.
Lillian M. Gilbreth, Sc.D., Montclair, N. J., The Man and the Job.
Mack M. Shafer, Dayton, Ohio, Selection and Placement of People.
Theodore G. Klumpp, New York, Resources of the Older Employee.
Theodore C. Waters, Baltimore, Industrial Health Legislation in 1948.
Mr. Joseph N. Scanlon, Boston, Health and Safety as Causes of Industrial Peace.

Sugar Research Foundation Award.—Entries for the Sugar Research Foundation's 1949 Fourth Intermediate Prize Award of $5,000 should be submitted to the executive secretary of the National Science Fund of the National Academy of Sciences on or before Jan. 1, 1949. The award will be given in recognition of discoveries, inventions or developments in the chemistry, physiology, metabolism or technologic application of carbohydrates which contribute most significantly to an understanding of the functions of sugar (sucrose) or to the practical utilization of sugar (sucrose) as a food or in medicine, agriculture, the arts, the industries or other fields of human endeavor. Selection will be announced about March 15, 1949. Winners of the Intermediate Annual Awards are eligible for the Grand Prize of $25,000 to be given March 1, 1950 for the most important work during the five years preceding. For further details address the Executive Secretary, National Science Fund of the National Academy of Sciences, 2101 Constitution Ave., N.W., Washington 25, D. C.

LATIN AMERICA

Mexican Medical Congress.—The Third Mexican Medical Congress will be held at Hospital General, Mexico City, November 7-13, under the presidency of Dr. Abraham A. González, Mexico City. There will be plenary sessions on gastroduodenal ulcer, nutrition, gastritis, cancer, liver and nutrition, diarrheas, proteins and amino acids. Among the guests will be Drs. John H. Garlock and Arthus H. Blakemore of New York, Henry L. Bockus of Philadelphia, Robert Elman of St. Louis, Sidney A. Portis of Chicago, Fernando Milanés of Havana, Cuba, and Pablo Luis Mirizzi of Córdoba, Argentina. Social activities have also been planned.

Marriages

FRANK WINDHOLZ, San Francisco, to Mrs. Grace Patricia Salter of New York and Los Angeles, July 19.

DANIEL W. COUGHLAN, Des Moines, to Miss Jacqueline Jeanne DePuy of Centerville, Iowa, July 25.

GEORGE W. GROTH JR., Sierra Madre, Calif., to Miss Eileen Margaret Ferguson of Monrovia, July 10.

CHARLES W. MAPLETHORPE JR., Toledo, Ohio, to Miss Dorothy Bowen of Muscatine, Iowa, July 25.

HARTWIG MOSS ADLER, New Orleans, to Miss Loretta Albert at Galveston, Texas, July 16.

CHESTER J. FORTUNA to Miss Marie Mildred Lorentz, both of Rochester, N. Y., July 3.

ELBERT HUBBARD III to Miss Rita Marie Fath, both of Buffalo, N. Y., July 3.

Deaths

George Linius Streeter, Baltimore; born in Johnstown, N. Y., Jan. 12, 1873; Columbia University College of Physicians and Surgeons, New York, 1899; demonstrator in anatomy of the nervous system at Albany Medical College, 1901-1902; served as instructor in anatomy at Johns Hopkins University School of Medicine, Baltimore, and from 1906-1907 as assistant professor of anatomy at the Wistar Institute of Anatomy and Biology, University of Pennsylvania, Philadelphia; professor of anatomy and director of the anatomy laboratory, University of Michigan Medical School, Ann Arbor, from 1907 to 1914, when he went to the Carnegie Institution of Washington as research associate, holding that position until 1918; director of the department of embryology at the institution from 1918 to 1940 and chairman of the division of animal biology from 1935 to 1940, when he became research associate; to mark his many years of service to the institution, volume 30 of the Contributions to Embryology, which appeared Dec. 31, 1942, was dedicated to him; the tribute also recognized his work in serving as editor of the volumes 8 to 29 during the period 1917 to 1940; formerly associate editor of the *American Journal of Anatomy;* a member of many national scientific societies, in 1926 he was president of the American Association of Anatomists; received the doctor of science degree from Trinity College in Dublin in 1928 and Union College in New York in 1930; in 1935 was awarded the doctor of laws degree from the University of Michigan; his research had been concerned with human embryology and development of the central nervous system, the internal ear and experimental biology; trustee of the Samuel Reading School; died in the Nathan Littauer Hospital, Gloversville, July 27, aged 75, of coronary thrombosis.

Albert August Gartner ⊕ Buffalo; born in Buffalo July 10, 1887; University of Buffalo School of Medicine, 1914; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; member of the House of Delegates of the American Medical Association from 1943 to 1948; chairman of the board of trustees of the Medical Society of the State of New York; served overseas during World War I; assistant professor of orthopedic surgery at his alma mater; affiliated with the Edward J. Meyer Memorial Hospital, Millard Fillmore Hospital and the Sisters of Charity Hospital in Buffalo; on the consulting staffs of the DeGraff Memorial Hospital, North Tonawanda, J. N. Adam Memorial Hospital, Perrysburg, Jones Memorial Hospital, Wellsville, and Our Lady of Victory Hospital in Lackawanna; died September 9, aged 61, of carcinoma of the esophagus.

George Bolling Lee ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1896; served as professor of gynecology and obstetrics at New York Polyclinic Medical School and Hospital; veteran of the Spanish-American War and World War I; fellow of the American College of Surgeons; for many years on the staffs of Bellevue Hospital, Woman's Hospital and the Hospital for Joint Diseases; member of the board of trustees of the Washington and Lee University in Lexington, Va., died in St. Luke's Hospital, July 13, aged 75, of fracture of the hip received in a fall.

Herbert Benjamin Allen ⊕ Austin, Minn.; University of Minnesota Medical School, Minneapolis, 1937; medical director of the George A. Hormel and Company; died in Bel Air, Calif., August 24, aged 42, of coronary heart disease.

James Samuel Alsobrook, Rossville, Ga.; Atlanta College of Physicians and Surgeons, 1899; member of the American Medical Association; past president of the Walker County Medical Association; at one time a member of the state senate; served as mayor and postmaster; died August 4, aged 77, of carcinoma of the prostate.

William Marsh Anderson ⊕ Haddonfield, N. J.; Boston University School of Medicine, 1906; served on the staff of the Cooper Hospital, Camden, where he died July 25, aged 67, of coronary occlusion.

Ernest Joseph Anthony, Black Mountain, N. C.; State University of Iowa College of Medicine, Iowa City, 1909; member of the American Medical Association and the Iowa State Medical Society; affiliated with Mission and St. Joseph's hospitals in Asheville; died August 27, aged 65, of cerebral hemorrhage.

Arthur Max Aszmann ⊕ East St. Louis, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1910; past president of St. Clair County Medical Society; died August 4, aged 62, of coronary occlusion.

David G. Bardwell ⊕ Charleston, Miss.; Memphis (Tenn.) Hospital Medical College, 1904; died August 10, aged 70, of heart disease.

Sidney Conroy Barrow ⊕ Shreveport, La.; Memphis (Tenn.) Hospital Medical College, 1901; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society and Radiological Society of North America; fellow of the American College of Radiology; past president of the Shreveport Medical Society and the Louisiana State Medical Society; formerly editor of the *Tri-State Medical Journal* (Arkansas, Louisiana and Texas); died August 11, aged 72, of uremia.

Joseph Mitchell Barsky ⊕ Wilmington, Del.; Jefferson Medical College of Philadelphia, 1914; retired as a brigadier general of the Delaware National Guard after twenty-five years' service; awarded the Legion of Merit in 1944 for outstanding service as a sanitary inspector at an island base in the Pacific from February 1942 to February 1943; served during World War I; past president of the New Castle County Medical Society; affiliated with the Wilmington General Hospital, where he died July 31, aged 56, of coronary thrombosis.

Carroll Charles Beach, Hartford, Conn.; Boston University School of Medicine, 1899; formerly served with the Connecticut Naval Militia; died August 16, aged 73, of arteriosclerotic heart disease.

Joseph Bear ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1912; assistant professor of obstetrics at his alma mater; member of the South Atlantic Association of Obstetricians and Gynecologists; president of the Richmond Obstetrical and Gynecological Club; served during World War I; affiliated with the Retreat for the Sick, St. Luke's Hospital, Medical College of Virginia Hospital, Grace Hospital, St. Elizabeth's Hospital and the City Home; died August 28, aged 59, of coronary thrombosis.

William Frederick Bender ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1913; served on the gymnasium staff of Columbia University and with the urologic clinic of the outpatient department of St. Luke's Hospital; died August 29, aged 72, of an infection with virus x.

Alice McL. Ross Bennett, Buffalo; University of Buffalo School of Medicine, 1890; died August 9, aged 81, of cerebral thrombosis.

Montgomery Herman Biggs ⊕ Rutherfordton, N. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; member of the Southeastern Surgical Association; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; affiliated with Rutherford Hospital, where he died August 28, aged 78, of hemiplegia of the left side and thrombus of the middle meningeal artery.

Benjamin Stephen Black, Rochester, N. Y.; Rush Medical College, Chicago, 1936; member of the American Medical Association; formerly secretary of the Clarke County (Ala.) Medical Society and health officer for Clarke County; served overseas during World War II; formerly affiliated with Mount Morris (N. Y.) Tuberculosis Hospital; died in Strong Memorial Hospital August 30, aged 45, of coronary occlusion.

Leo Blass, Los Angeles; St. Louis College of Physicians and Surgeons, 1908; died in Tel Aviv, Israel, August 21, aged 65, of heart disease.

Courtland Linden Booth ⊕ Portland, Ore.; Western Reserve University Medical Department, Cleveland, 1908; member of the Portland Academy of Medicine; formerly on the faculty at the University of Oregon Medical School; served as secretary of the Oregon State Medical Society; recent chairman of the state and the county committees on industrial health; on the staffs of the Providence Hospital, St. Vincent's Hospital and the Portland Sanitarium and Hospital, where he died July 13, aged 71, of coronary occlusion.

Robert Emmett Bowman, Bronwood, Ga.; Atlanta College of Physicians and Surgeons, 1904; formerly mayor and member of the school board; served during World War I; died in Dawson, July 14, aged 65, of coronary thrombosis.

Theron Robert Bradley ⊕ South Norwalk, Conn.; University of Maryland School of Medicine, Baltimore, 1914; died July 7, aged 69, of coronary thrombosis.

Erwin Sheridan Briggs, Warren, Pa.; Jefferson Medical College of Philadelphia, 1906; past president and secretary of the Warren County Medical Society; member of the American Medical Association; served during World War I; secretary of the board of health of Warren and school district physician; county medical director; affiliated with Warren General Hospital, where he died August 18, aged 71, of cerebral thrombosis.

Stanley Needham Brinson, Memphis, Tenn.; Memphis Hospital Medical College, 1908; member of the American Medical Association; served overseas during World War I; died August 1, aged 67, of heart disease.

George W. Brooks, Tustin, Mich.; Detroit College of Medicine, 1901; died July 22, aged 69, of cirrhosis of the liver and chronic nephritis.

Carl Wilson Brown, Lancaster, Ohio; Starling-Ohio Medical College, Columbus, 1910; member of the American Medical Association; secretary of the Fairfield County Medical Society; served overseas during World War I; a medical examiner for the Selective Service Board during World War II; for many years affiliated with the Boys' Industrial School Hospital; on the staff of the Lancaster Municipal Hospital, where he died August 12, aged 60, of cerebral hemorrhage.

Everett Rhea Brown, Chicago; Bennett Medical College, Chicago, 1916; died August 20, aged 57, of chronic myocarditis and hypertension.

Sidney Pope Brown, Potsdam, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the American Medical Association; served during World War I; for many years county coroner and town and village health officer; served as president and member of the staff of Potsdam Hospital, where he died August 3, aged 78, of diabetes mellitus.

Oliver C. Brunk ✠ Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1903; served in France during World War I; surgeon for the police department; member of the staff of the Johnston-Willis Hospital; formerly superintendent of the Eastern State Hospital, Williamsburg; died in the Johns Hopkins Hospital, Baltimore, August 19, aged 69, of empyema.

Rosabell A. Butterfield, Indianola, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1907; member of the American Medical Association; served as president of the Warren County Medical Society; died in the Mercy Hospital, Des Moines, July 14, aged 83, of a fracture of the hip received in a fall and uremia.

Michael Howard Gilbert Carmody, Painesville, Ohio; Cleveland Medical College, Homeopathic, 1897; affiliated with the Lake County Memorial Hospital; died August 27, aged 71, of cerebral thrombosis.

Henry Gerald Carroll ✠ Salem, Mass.; Dartmouth Medical School, Hanover, N. H., 1907; member of the New England Ophthalmological Society; fellow of the American College of Surgeons; affiliated with the Salem (Mass.) Hospital and the Beverly (Mass.) Hospital, where he died August 11, aged 64, of toxemia and agranulocytosis.

Maurice Caspe, New York; University of the City of New York Medical Department, New York, 1886; formerly on the staff of Flower Hospital; died August 31, aged 90, of pneumonia.

Francis Milton Chapman, Milwaukee; Rush Medical College, Chicago, 1892; died in Milwaukee Hospital August 14, aged 78, of injuries received in a fall and diabetes mellitus.

John Albert Chenoweth, Joplin, Mo.; Rush Medical College, Chicago, 1914; member of the American Medical Association; past president of the Jasper County Medical Society; served during World War I and later in the army of occupation; for many years city physician and member of the library board; affiliated with St. John's Hospital and Freeman Hospital; died July 15, aged 58, of coronary occlusion.

Max Climan ✠ West Hartford, Conn.; Columbia University College of Physicians and Surgeons, New York, 1915; specialist certified by the American Board of Radiology; member of the New England Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; consulting roentgenologist at the Veterans Administration Hospital in Newington; on the staff of Mount Sinai Hospital in Hartford, where he died August 18, aged 56, of pulmonary embolus and bleeding peptic ulcer.

Robert Joseph Conlon ✠ Washington, D. C.; Georgetown University School of Medicine, Washington, 1918; clinical professor of medicine at his alma mater; for many years chief of staff of Providence Hospital; died August 22, aged 55, of coronary thrombosis.

Marcellus Ellsworth Coy ✠ Dayton, Ohio; Detroit College of Medicine, 1901; died in Miami Valley Hospital August 1, aged 73, of carcinoma of the bladder.

Alva Brown Craddock ✠ Asheville, N. C.; Johns Hopkins University School of Medicine, Baltimore, 1918; member of the American College of Chest Physicians; fellow of the American College of Physicians; affiliated with the Asheville Mission and Biltmore hospitals; died July 29, aged 59, of chronic duodenojejunitis.

Alfred Penn Crain ✠ Shreveport, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1907; city physician; fellow of the American College of Surgeons; past president of the Shreveport Medical Society; affiliated with the North Louisiana, Highland and T. E. Schumpert Memorial sanitariums and Tri-State Hospital; died August 16, aged 67, of coronary occlusion.

Robert James Danehy, Newton, N. C.; St. Louis University School of Medicine, 1943; member of the American Medical Association; died in August, aged 31, of injuries received in a plane crash.

Ludwig Frank Derfus ✠ Salem, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1911; served overseas during World War I; on the staff of the Salem City Hospital, died August 4, aged 62, of injuries received when struck by a taxicab.

Herman Russell Dewey ✠ Bellevue, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; served during World War I; died July 30, aged 80, of cerebral hemorrhage.

Frank P. Donahue, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; died in St. Camillus Hospital, Wauwatosa, August 18, aged 66, of an accidental fall, myocarditis and essential hypertension.

Samuel Earl Eagon, Cincinnati; Eclectic Medical College, Cincinnati, 1915; served during World War I; died in the Bethesda Hospital August 7, aged 57, of pulmonary embolism and myocardial infarction.

Kurt Eichwald, Zanesville, Ohio; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1920; member of the American Medical Association; died August 31, aged 57.

Erich Richard Erlanger, Rockford, Ill.; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1928; member of the American Medical Association; affiliated with St. Anthony Hospital, where he died August 9, aged 46, of carcinoma.

George B. Fadeley, Arlington, Va.; University of Maryland School of Medicine, Baltimore, 1889; for many years president of the Falls Church (Va.) Bank; died August 18, aged 86.

Charles Hardy Fair, Greenville, S. C.; George Washington University School of Medicine, Washington, D. C., 1909; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; served during World War II; affiliated with Greenville City and St. Francis hospitals; died August 5, aged 67, of chronic pulmonary fibrosis.

Carl Lowell Fairbank, San Diego; Chicago Homeopathic Medical College, 1894; died August 10, aged 76, of arteriosclerosis and pyelonephritis.

George Washington Fithian ✠ Perth Amboy, N. J.; University of Pennsylvania Department of Medicine, Philadelphia 1899; past president of the Middlesex County Medical Association; served during World War I; formerly city physician; on the staff of Perth Amboy General Hospital, where he died August 9, aged 72, of perforated duodenal ulcer.

Joseph Daniel Foley, Springfield, Mass.; University of Maryland School of Medicine, Baltimore, 1916; served during World War I; assistant city physician; on the courtesy staff of Mercy Hospital, where he died August 13, aged 55, of cerebral hemorrhage.

Edward Aloysius Gorman, Alexandria, Va.; Georgetown University School of Medicine, Washington, D. C., 1898; member of the American Medical Association; for many years health officer of Alexandria; chief medical examiner of the draft boards in Alexandria and Arlington during World War I; on the staffs of Emergency, Sibley and Casualty hospitals in Washington, D. C.; died in Ellicott City, Md., July 19, aged 75, of prostatic carcinoma.

Edward John Grainger, Winthrop, Mass.; Harvard Medical School, Boston, 1903; member of the American Medical Association; died in Concord, N. H., July 25, aged 70, of gastric hemorrhage.

Edgar Agassiz Green, Ridgway, Ill.; Barnes Medical College, St. Louis, 1898; died July 26, aged 74, of myocarditis and hypertension.

Bruce Garfield Hamlin, Scranton, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1909; member of the American Medical Association; on the staff of Hahnemann Hospital; died July 30, aged 67, of coronary thrombosis.

John La Fayette Hart, Lancaster, Ky.; Hospital College of Medicine, Louisville, 1905; member of the American Medi-

cal Association; died in the Ephraim McDowell Memorial Hospital, Danville, July 23, aged 70, of injuries received in an automobile accident.

Alvin Thomas Jordan, Hurricane, W. Va.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; died in Charleston July 20, aged 72, of carcinoma of the stomach.

Clarence W. Keene ✠ Silverton, Ore.; University of Oregon Medical School, Portland, 1901; on the staff of Multnomah County Hospital; died July 25, aged 73, of heart disease.

Oza Joseph LaBarge ✠ Alexandria, La.; University of Michigan Medical School, Ann Arbor, 1923; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the Utah State Medical Association; served during world wars I and II; chief of the medical division of the Veterans Administration Hospital; died July 28, aged 50, of cerebral hemorrhage.

Norman Jacob Lebhar, New York; Columbia University College of Physicians and Surgeons, New York, 1900; died in the Lenox Hill Hospital July 25, aged 69, of carcinoma of the cecum.

Edmond Rushin Lett, Tallassee, Ala.; Louisville (Ky.) Medical College, 1905; member of the American Medical Association; served during World War I; senior surgeon for the Tallassee Falls Manufacturing Company for many years; died July 18, aged 66, of acute cholecystitis.

Louis Levy ✠ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1908; affiliated with Hotel Dieu and the Touro Infirmary; died July 24, aged 62, of coronary thrombosis.

Luther Longino, Minden, La.; Missouri Medical College, St. Louis, 1882; died July 29, aged 100, of senility.

John Harrison Lynn, Pocatello, Idaho; College of Physicians and Surgeons, School of Medicine of the University of Illinois, 1912; for many years city physician; died July 30, aged 72, of coronary thrombosis.

Emanuel Manko, Kansas City, Mo.; University Medical College of Kansas City, 1905; at one time professor of chemistry at the Kansas City College of Pharmacy; for many years on the staff of St. Joseph Hospital; died July 19, aged 74, of arteriosclerosis and pernicious anemia.

Henry James Schwensen ✠ Canton, Ohio; Ohio State University College of Medicine, Columbus, 1925; affiliated with the Aultman Hospital; died July 25, aged 54, of coronary occlusion.

Frank Leslie Snyder, Fort Lauderdale, Fla.; Ohio State University College of Medicine, Columbus, 1935; member of the American Medical Association; fellow of the American College of Surgeons; served during World War II; on the staff of Broward General Hospital; died in West Palm Beach July 28, aged 38, of injuries received in an automobile accident.

William Earl Thompson, Greeley, Colo.; Colorado School of Medicine, Boulder, 1903; member of the American Medical Association, past president of the Weld County Medical Society; on the staff of the Weld County Hospital, where he died July 28, aged 71, of cholecystitis.

Arnold Traubitz ✠ Leadwood, Mo. (licensed in Missouri in 1905); served during World War I; died July 17, aged 68.

Eric R. Twachtman, Cincinnati; Ohio-Miami Medical College of the University of Cincinnati, 1910; member of the American Medical Association; served in France during World War I; on the staffs of the Deaconess and Good Samaritan hospitals; died in Monhegan Island, Me., July 11, aged 62, of coronary occlusion.

LIEUT. JAMES F. HANDLEY JR.
(MC) U.S.N., 1911-1945

MAJOR LOUIS W. SCHNEIDER
M.C., A.U.S., 1912-1944

LIEUT. DANIEL A. SHAPIRO
M.C., A.U.S., 1915-1944

KILLED IN ACTION

James Franklin Handley Jr. ✠ Passed Assistant Surgeon, Lieutenant, U. S. Navy, Marshall, Mo.; University of Pennsylvania School of Medicine, Philadelphia, 1937; interned at St. Luke's Hospital in Spokane, Wash., and the U. S. Marine Hospital in Chelsea, Mass.; entered the U. S. Navy in August 1939; missing in action on March 1, 1942 south of Java while serving on the U. S. S. *Langley;* aged 34; presumptive date of death according to the U. S. Navy, Dec. 15, 1945.

Louis W. Schneider, St. Louis; St. Louis University School of Medicine, 1936; member of the American Medical Association; interned at the Jewish Hospital; began active duty in the medical reserve corps of the U. S. Army as a captain in August 1940; later promoted to major in the medical corps, Army of the United States; killed in the South China sea Oct. 24, 1944, aged 32, when a Japanese ship on which he was being transported while a prisoner of war was sunk.

Daniel Albert Shapiro, San Francisco; University of California Medical School, San Francisco, 1940; served an internship and residency at the Mount Zion Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, in July 1941; served on Bataan and was captured by the Japanese on Corregidor; subsequently interned; died in the Asiatic area Oct. 24, 1944, aged 29, when the ship on which he was being transported to Japan was sunk.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 2, 1948.

A Hostel of New Design for Paraplegics

Much attention has been given since the war to the rehabilitation of the disabled, not only of those whose disability was due to war but also of those disabled in civil life. The latest new departure is the building by the Ministry of Pensions at Osterley, near London, of a hostel for paraplegics. It is situated just off the Great West Road because of the light industries which have been set up there in bright modern factories. In the closing months of the war the pioneer work of the Ministry of Pensions hospital at Stoke Mandeville in the treatment of war paraplegics was described in an article in the *Times*. It was there recorded that paraplegics whose plight had once been regarded as hopeless could be assisted with much success to conquer their disability and that some were working part time in a local wireless factory. The progress made was summed up in the House of Commons by Secretary of the Ministry last June, when he said that of about 600 men and women paraplegics from the war 200 were still in hospital; of the remainder 70 per cent were in full and regular employment.

For the paraplegics at Osterley the cooperation of the firms in the district has been obtained through the Ministry of Labor, so that they will be able to take regular jobs at the factories while living in conditions suited to their special needs and under medical care. Later it may be possible to add bungalows which they can share with their families. The hostel at Osterley has been designed and planned by the Ministry of Works in conjunction with Dr. J. F. E. Prideaux, Director-General of Medical Services at the Ministry of Pensions, in the light of the experience gained at Stoke Mandeville. The staff of the Ministry is taking the greatest interest in finding solutions for many unfamiliar problems which arise. Nothing like this hostel has ever been seen before. Except for the quarters of the male nursing staff over the administrative block, the hostel is all on one floor. Doors and windows are wide to permit the passage of hand-propelled chairs in which the disabled spend all their waking hours indoors. The doors move sideways on ball bearings. The touch of one finger is enough to shut or open them. All the furniture is designed to be just the right height for men in wheeled chairs. They use the cords and pulleys to lift themselves in or out of bed or the bath. There are motor-propelled chairs to take each man to his work at the factory.

Medical Schools in Germany

On the invitation of the American authorities, representatives of the General Medical Council, the Royal College of Physicians and the Royal College of Surgeons visited the American zone of Germany and interviewed both members of the United States Medical Service and German teachers and practitioners, in order to assist the Government of the American zone by informing them and the Germans of the system of medical education in England, the discipline of the medical profession and the new National Health Service. They visited Frankfurt, Heidelberg, Stuttgart, Munich, Erlangen and Wurzburg and had discussions with the deans and professors of the medical faculties and also with representatives of general practitioners. A striking feature of the German situation was the immense number of persons who desire to take up a medical career. At Heidelberg there were 1,600 applicants for one hundred and fifty vacancies. At Munich there were 3,000 medical students. In spite of decisions for their reduction, the number itself forms a serious problem for the university. The difficulty is increased by the serious depletion of the teaching staffs, the destruction of hospital buildings and laboratories and the lack of funds. In order to obtain clinical experience many doctors have taken up posts as unpaid assistants at the hospitals. In Frankfurt, for example, Professor Volhard has 16 paid and 51 unpaid assistants in his large medical clinic. The unpaid assistants live a precarious life, subsisting on the charity of their relations or friends, often with insufficient food. The plight of the students is even worse, for housing accommodation is totally inadequate and books almost unobtainable.

The needs of the medical faculties are both financial and academic. More money is required for the rebuilding of hospitals and laboratories, for the payment of more assistants and especially for the payment of research students. At present little or no research is done because of lack of funds. The serious shortage of German textbooks is unavoidable, but the medical schools are also starved of foreign journals, which they cannot buy because of lack of dollars and sterling. This visit was to the American zone only, but it was ascertained that the same conditions prevail in all the medical schools of Germany. The representatives end with a plea for assistance to Germany "if only as an acknowledgment of what we owe to German medicine in the past."

ITALY

(From Our Regular Correspondent)

FLORENCE, Sept. 15, 1948.

Medical Meetings

The Italian committee for the study on rheumatism and the Italian group for the study on metabolism held their annual meetings in the city of warm springs, Acqui, under the chairmanship of Professor L. Zoia.

Professor Condorelli of Catania reported on "acute rheumatic and subacute atypical episodes." He considered the less common aspects, i. e., those in which rheumatic disease may take its course in the absence of any manifestations in the joints. With no reliable laboratory tests the diagnostic presumption in these cases depends nearly altogether on clinical and therapeutic criteria. From time to time, value will be attributed to small signs, which may acquire a decisive significance for the diagnosis of rheumatic infections. It is important to take into account the remote history to detect rheumatic episodes or occasional mild rheumatic recurrences. In the course of the actual attack, pathologic signs may be presented by the cardiovascular apparatus; for example, unprogressive accentuation of the cardiac sounds, appearance of arrhythmia, electrocardiographic changes. Treatment with large doses of sodium salicylate rather than aminopyrine, which according to the speaker may be considered of great importance for the successful treatment of acute rheumatism, may often prove the rheumatic causation of a condition of the type described.

Professor Condorelli considered two atypical aspects of rheumatic infection without rheumatism: One is characterized by fever of various type and degree in the absence of any objective focal sign, and the other presents precocious visceral localizations of great variety.

The report of Professor Bassi dealt with "Lactoflavinic Dysgenovitaminosis."

Mycotic and Leukemic Erythroderma

At a meeting of the Italian Society for Dermatology and Syphilography, Professor Mezzadra of the Clinic of Padova, reported on the relation between mycotic and leukemic erythroderma. Then Professor Mezzadra discussed 3 clinical cases.

The first patient, a woman aged 35, had mycosis fungoides of diffuse polymorphous character with erythroderma. The

second patient had mycosis fungoides of premycotic type, but with definite signs of incipient polymorphism. The third case was of a lymphadenic type of erythroderma in a man aged 70.

Microscopic examination of the cutaneous lesions and of those of the lymph nodes of the first patient revealed a typically granulomatous structure with incipient sclerosis and giant cells of Sternberg's type, which recalled the structure of malignant lymphogranuloma. The dominant microscopic characteristic of the case was a cellular polymorphism with the presence of plasma cells, lymphoid cells and fibroblasts, which recalled the structure of infectious granuloma.

These and other structural peculiarities observed were interpreted by the author as an attempt of defense of the organism most characteristic of the pretumorous stage in which the cellular proliferation remains disorderly and is ultimately useless.

From a study of the literature on erythrodermatous mycosis, Professor Mezzadra reached the following conclusions: 1. The term mycotic erythroderma does not always satisfy the classic concept of generalized erythema which persists from the beginning to the end. 2. Some cases described by the term mycotic erythroderma may be disputable because they often may be identified with a diffuse erythrodermic picture, with constant polyadenopathy, hepatosplenomegaly and leukemoid state. 3. There are cases of mycosis fungoides for which the term diffuse mycosis fungoides or mycosis fungoides with erythrodermic state may be more appropriate, so far as the generalization of the cutaneous picture is associated with the juxtaposition of polymorphous lesions. 4. Clinically and microscopically, the lymphadenous erythroderma must be differentiated from the mycotic syndrome, although one must recognize that histogenetically both pictures may be led back to a reticuloendothelial proliferative alteration. 5. Some cases described with the term Hebra's pityriasis rubra may be considered as of lymphadenic erythroderma.

Opaque Transbuccal Clysma of Small Intestine

Professor A. Lura reported at the Medico-Surgical Association of Bologna that for about one year he has been studying at the Radiologic Institute and at the Medical Clinic of the University the administration of the contrast medium for the roentgen diagnosis of the small intestine by means of a catheter introduced into the duodenum. The method for which the term "opaque transbuccal clysma of small intestine" has been coined offers great advantages as compared to the normal administration of the opaque paste, which may be summarized as follows: (1) the possibility of obtaining within a few minutes sight of the entire small intestine and occasionally part of the large intestine; (2) the possibility of following the top of the opaque column in its entire course without too long an exposure to the roentgen rays; (3) study of the small intestine when filled; (4) a study of function of the small intestine under mechanical stimulation—a function test.

In addition the following results may be obtained in practice: determination of the importance of the anatomic lesions of the small intestine, and particularly of neoplastic infiltration, superior to that obtained by normal administration of the opaque paste, particularly with regard to the evaluation of the extent of the involvement of the intestinal tract; study of the small intestine in patients in whom the administration of the contrast medium may be difficult by the normal route because of obstinate vomiting; the possibility of confirming by an examination of short duration whether a palpable mass in the abdomen is intrinsic or extrinsic to the alimentary canal; the possibility of demonstrating or excluding the presence of suboccludent stenosis in cases with doubtful interpretation, and direct demonstration of vicious circle in gastroenteroanastomosis.

DENMARK

(From Our Regular Correspondent)

Oct. 9, 1948.

Professor Schmiegelow's Reminiscences

At the age of 90, Professor Schmiegelow has published an autobiography which brings the reader in touch with more than half a century of the modern history of medicine. This nonogenarian with most remarkable mental and physical vitality was an ailing child and a consumptive young man. In childhood he suffered from scrofula and tuberculous glands, and at the age of 21 contracted severe pulmonary tuberculosis, which flared up again at the age of 30. He has filled the subsequent sixty years of his life with tireless energy. Pen portraits of Koch, Pasteur and Lister are drawn by this Danish surgeon, and a dramatic account is given of a debate at the Fourth International Hygiene Congress in Geneva, where Pasteur abused Koch and Koch abused Pasteur to the great amusement of the audience. The account given of Lister's antiseptic activities is more vivid than flattering.

In 1883, Professor Schmiegelow succeeded in introducing otolaryngology as an independent speciality in hospital practice in Copenhagen, but it took him forty-six years to get this speciality on an equal footing with other disciplines, and it was not till some time after he retired at the age of 70 that the salary of his successor was brought up to that of other University professors. For years his surgical colleagues, Professor Block and Professor Rovsing, sneered at otology as a specialty and at otologists claiming to undertake radical operations in their own field. It must have been with an ironic smile that Professor Schmiegelow consented to operate on Professor Rovsing for cancer of the larynx. Professor Schmiegelow has been a familiar figure at so many international medical conferences and over so long a period that the many who have met this richly endowed, cosmopolitan Dane will revive pleasant memories when they scan his entertaining, running commentary on his own experiences and on the many distinguished men whom he has met.

The High Death Rate Among Danish Doctors

A recent analysis of the causes of death among Danish doctors, published by Marie Lindhardt in the journal of the Danish Medical Association, covers the ten year period 1935 to 1944, during which there were 504 deaths among male doctors. Women doctors are not dealt with in this analysis. Had the death rate been the "normal" for the whole population, there would have been only 437.9 deaths among doctors in the same period. A table in which the main causes of death are classified separately shows that infectious diseases (not including tuberculosis), heart disease and suicides were largely responsible for the excess death rate. The figures which follow in brackets refer to the expected or "normal" death rate.

There were 23 (13.3) deaths from infectious diseases other than tuberculosis, 21 (12.5) deaths from suicide and 128 (81.9) deaths from heart disease. These figures tally well with those of other civilized countries, and they are fairly easy to explain. Doctors succumb often to the infectious diseases because they come more in contact with them than other men. They die of heart disease because their work entails exceptionally heavy strain, but why do Danish doctors, like their colleagues in England, commit suicide so often? It can surely not be a coincidence that all the 21 suicides were carried out by poisons to which doctors have, of course, exceptionally easy access. Here in Denmark, as well as in certain other civilized countries, suicides are more common among the well to do, so-called educated classes than among the lower classes. It is not easy to explain this difference. It might be asked why tuberculosis had claimed only 13 (16.4) deaths among male doctors in the

ten year period under review. Is it that this disease is recognized earlier in doctors than in other men? Or does tuberculosis weed out several young men before they have had time to qualify as doctors?

The Late Professor Carl Sonne

The news of Carl Sonne's death last June must have made many scientists in different parts of the world wonder whether this was really the man whose name has already figured in textbooks on bacteriology in connection with dysentery bacilli. He is, in fact, the Sonne of dysentery fame, and his M.D. thesis was based on his now historic study of the various bacilli responsible for dysentery. But this particular study was only a fraction of his scientific output. He was born on the island of Bornholm in 1882, and it was to his home on this island that he retired shortly before his death. As a young man he came under the influence of his countryman, Professor Christian Gram, at the Rigshospital in Copenhagen. His bacteriologic bent led to his appointment as head of the Finsen Institute Laboratory, where one of the most important of his studies concerned the part played by light in the formation of vitamin D in the skin. He sought to ascertain which are the components of the spectrum which have a biologic action on living tissues, and if he did not find all he sought he at any rate made observations which will assuredly be helpful to his successors in this field.

After ten years as head of the Finsen Institute Laboratory, Sonne was put in charge of the Medical Polyclinic of the Rigshospital, and some time later succeeded Lundsgaard as head of Department A, in which as a young man he had studied medicine from the clinical side. But he remained a research worker at the same time, and he and his associates spent many years on the study of the mixture of gases in the lungs.

MADRID

(From Our Regular Correspondent)

Sept. 1, 1948.

Aeronautic Medicine in Spain

The National Department of Sanitation in Aviation, of which General Miguel Lafont Lepidana is the head, has important centers for teaching and research on aeronautic medicine in Madrid and in Sevilla, besides centers for either purpose in hospitals and infirmaries in several cities, and centers of aeronautic medical first aid with which all the airdromes and aviation units are provided. There are polyclinics with radiologic departments, in Zaragoza, Valencia, Valladolid, Palma de Mallorca, Las Palmas (the Canary Islands) and Tetuán.

The headquarters of the organization are in Madrid, where there are three independent centers, namely, the Academy of Sanitation, the Central Hospital and a sanatorium against tuberculosis with one hundred and fifty beds. The Center of Research on Aeronautic Medicine is now under construction in a suburban district near Madrid.

In the Academy of Sanitation the work carried on consists of teaching courses for the preparation of medical cadets and of nurses. All personnel, of this national branch has their first medical examination there for entrance to the service. After this examination all the personnel have periodic roentgenographic examinations of the lungs for tuberculosis.

In the Central Hospital there are two departments of general surgery, with Drs. Angel Garaizabal Bastos and Luis Suarez Carreño as heads of the departments. There is also a department of urology, with Dr. Martin Laborda as head. A department for surgery of the lung is to be constructed in the near future. The three complete departments for neuropsychiatry, nutrition and diseases of the digestive tract and diseases of the respiratory and circulatory apparatus are provided with departments of radiology, electrocardiography and metabolimetry. There is also an independent department of general roentgenology, with divisions for roentgen and radium therapy, which include the departments of physical therapy and electrotherapy. There are also a clinic of specialities, departments for infectious diseases and pathologic anatomy and clinical laboratories. Examinations of all aviation personnel are made every six months at the Central Hospital. The examination is carried on by specialists, and the persons showing organic disease, even if minimal, are temporarily removed from duty and may be permanently removed if the organic condition does not improve.

The Center of Research in Aeronautic Medicine, which has a building in University City, is organized in independent sections, namely, Pathologic Anatomy of Flight (Dr. Valle Jimenez, Physician Commandant), General Physiopathology of Flight (Dr. Ruiz Gijón), Physiologic Pathology of Flight (Dr. Grande Cobián) and Department of Aeronautic Medicine (Dr. López Cotarilla). The Center has two low pressure chambers, one for sudden decompression and the other for experiments on animals. The chamber for studies on human beings is used also for physiologic studies of flight personnel who have examinations at the Central Hospital.

The Medical Center of Aviation has carried on important studies on aeronautic medicine. Some of these are:

1. Studies on resistance to anoxia. These studies were carried out on two groups of 20 men each, namely, those who had altitude "training" periods by living in high mountains at least a month before starting to fly and those who had not (controls). The resistance to anoxia, at various altitudes above 4,500 meters (the limit of free normal respiration) was greater in "trained" men than in the controls. The mechanism of defense of hypoxia appeared earlier, and the reserve time for the limit altitude of 7,000 meters (time of appearance of symptomatic disorders) was longer in the former than in the latter. It is apparent from these findings that the stay of pilots in high mountains before starting to fly increases their capacity to withstand altitudes.

2. Physicians at the Center of Medicoaeronautic Research are carrying on studies on the cardiocirculatory, respiratory and sensorial changes, signs of immediate collapse. Changes of the renal function during flying were also studied (the creatinine clearance test). The results of studies on the renal function are confirmatory of previous reports concerning cases of pronounced anuria before and in the course of occurrence of collapse. The experiments carried on by these physicians confirm those reported by Scandinavian and other researchers, namely, that injection of blood of animals in the precollapse stage into normal animals causes fulminant anuria.

3. The Center of Medicoaeronautic Research is carrying on research on the effect on respiration of pure oxygen at different altitudes. Dr. Valle showed the toxic effects of oxygen under high pressure, causing lesions on the lung, alveolar desquamation, general congestion and hemorrhages of capillary vessels and of venules which originate in the hilus. There is arteriolar contraction without any arteriolar lesion. The arterioles may dilate, later on, with frank capillary and venular dilatation (an image which is opposite to that provoked by histamine in the normal lung). There is also regular dilatation of the bronchial tree, the mucosa of which is unfolded without any normal folds, and it is the seat of acute infiltration of the catarrhal type, with eosinophils, histiocytes and plasma cells ("asthma from oxygen," which may progress to asphyxia). These changes are less acute when caused by great altitudes than when caused by moderate altitudes, a phenomenon which probably depends on the relative partial hypopressure of gas in the alveoli which is a natural effect of altitude.

4. Experiments were carried on to ascertain the significance of the reticuloendothelial system in anoxia. The method used was that of the time of disappearance from the blood of vital stains (tripan blue or india ink) in predetermined periods which

during the time of observation were not eliminated through the emunctory organs. The animals breathed for a long time in high altitude atmospheres (in general, the experiments were carried on always at the critical altitude of 7,000 meters). Slight irritation of the reticuloendothelial system and increased functional activity were shown by the prompt elimination of the stains from the blood. The changes of the reticuloendothelial system were either moderate or almost unnoticeable. The results of the aforementioned experiments will be reported by the Center of Research on Aeronautic Medicine in the near future.

The Institute of Aeronautic Medicine, of which Colonel Dr. Jiménez Ontiveros is the head, is also carrying on research which will be reported in the near future.

Correspondence

ARMY MEDICAL SERVICE

To the Editor:—It seems to me that the needs for specialists, set forth in General Bliss's letter, could easily be met if the medical schools were to grant one year's leave of absence to all faculty members who were on essential lists during the war and these men served in appropriate posts in the Army during the next two years. In many cases they could be assigned to service installations within commuting distance of their homes, for at least half of their tours of duty, but all should be at least three months in the overseas installations.

During the war many of us were surprised at the disqualification of medical applicants for trivial physical defects. I was asked to enter the Navy, by the late Commander Eric Liljencrantz, and was rejected for defective vision. My vision was tested, in about thirty seconds, by an enlisted man, but that settled the matter. Why a doctor needs more than 20/20 in one eye and 20/80 in the other is a mystery. Why any doctor who can engage in practice cannot be used in the service would be difficult to explain, since dispensary duty is far less exacting. Yet many men who went through medical school as Army privates were turned down for commissions, in 1944-1946, because of "physical defects" which had in no way interfered with a seventy hour week as interns. Specialists, in many cases, are over 40 years of age and have trivial physical defects, but it should be easy to supply 800 from the group of medical school "essential list" members if the Army wants technical competence and ability to put in a full week's work, rather than some ideal of physical perfection.

WILLIAM DOCK, M.D., Director of Medicine,
Long Island College of Medicine, Brooklyn.

DIABETES DETECTION

To the Editor:—In response to many questions from doctors dealing with methods which may be employed to discover patients with diabetes in a community, the following statement, which should prove helpful, has been prepared. The demonstration by a series of surveys that there are a million patients with undiscovered diabetes in the United States and Canada is a challenge to the doctors of these countries to discover these diabetic persons early and to bring to them the advantages of the great discoveries in the treatment of diabetes in recent years. With the cooperation of state and county medical societies, local diabetes associations and all health agencies this may be assured.

In January 1949, there will be available a "kit" which is now in the process of manufacture, which will provide for doctors a method for doing a "screening" blood sugar analysis in his office in five to ten minutes. This blood sugar analysis is so arranged that it screens patients whose blood sugar levels are above or below normal, although it does not give an absolute figure for the blood sugar. However, this method developed by Dr. Wilkerson and his staff of the U. S. Public Health Service will really enable the practicing doctor to do in his office a test which will be of tremendous value in the process of screening out those patients whose glycosuria deserves further study. It will provide a technic which will give the doctor something he needs and at the same time will give great aid to the teaching of diabetes especially in postgraduate courses. In county medical societies, it does seem to me that the work of daibetes detection may be prosecuted with confidence.

HOWARD F. ROOT, Boston.

DIABETES DETECTION DRIVE BEGINNING IN DIABETES WEEK, DEC. 6-12, 1948

HOW TO FIND AND HELP THE DIABETIC PATIENTS IN YOUR COMMUNITY

TEN QUESTIONS FROM PHYSICIANS: ANSWERS FROM THE AMERICAN DIABETES ASSOCIATION

"I'll do my share," says the doctor, "but I'd like to ask a few questions about this Diabetes Detection Drive."

1. *What symptoms should suggest early diabetes?*
   Don't wait for any of the typical symptoms of diabetes
   (*a*) Loss of weight and strength in spite of a good appetite.
   (*b*) Increase in thirst, (*c*) frequent urination, (*d*) itching.
   (*e*) Aching pains in the extremities, and (*f*) visual disturbances.
   The early diagnosis of diabetes can only be made with certainty by laboratory tests of the blood and urine.
2. *Who are the people with hidden diabetes? What kind of person is in this group?*
   It may be anyone regardless of race, age, sex, weight or previous state of health. It may be *you.*
3. *How can I find out if I have diabetes?*
   Have the urine tested for sugar one to three hours *after you have eaten a full meal.* Arrange for a blood sugar test if the urine shows even a trace of sugar.
4. *What laboratory findings indicate diabetes with a high degree of probability?*
   Any amount of glucose in the urine, accompanied by blood sugar values * above the following levels:
   (*a*) Venous blood sugar
      1. By Folin-Wu method—over 130 fasting; over 200 after eating.
      2. By Somogyi method, or other method indicating true glucose value, over 110 fasting, over 150 after eating.
   (*b*) Capillary blood sugar
      1. By Folin-Malmros method, over 140 fasting, over 240 after eating.
      2. By methods indicating true glucose value, over 120 fasting, over 200 after eating.
   When the reports are close to these values or when there is a complicating illness (for example, hyperthyroidism):
   (*a*) Repeated blood sugar tests should be secured, or
   (*b*) A glucose tolerance test performed for verification, after the illness has subsided. The sugar tolerance test should be done under normal conditions of diet; the diet for three days in advance of the test should include at least 250 grams of carbohydrate per day. The diagnosis of diabetes should not be made on the basis of one high blood sugar report alone.
5. *What laboratory findings usually rule out diabetes?*
   A venous or capillary blood sugar below the following values, 30 to 90 minutes after a meal containing the normal amount of carbohydrate, *providing the diet has not been restricted previously:*
   (*a*) Folin-Wu (venous or capillary) or similar method, below 120.
   (*b*) Somgyi, (venous or capillary) or other method indicating true glucose, below 90.

* All blood sugar values are expressed in mgs. per 100 cc. blood.

6. *When facilities for blood sugar tests are not readily available, what is the alternative?*

A blood sugar test for screening has been introduced by Wilkerson and Heftmann * which enables any physician or technician to make this test in the office or in the home. It does not show the exact level of the blood sugar; it only shows whether the blood sugar is abnormally high or abnormally low. The diagnosis of diabetes should not be made by this test alone. When it indicates high blood sugar, it must be verified by one of the standard methods. If no blood sugar tests are made, the urinalysis should be repeated frequently. If glycosuria is present, accurate blood sugar tests are essential for the diagnosis of diabetes.

7. *What can I, as an individual physician, do to aid in the Diabetes Detection Drive?*

(*a*) Test your own urine today
(*b*) Test each member of your family this week
(*c*) Make urinalysis for
1. Every new patient routinely
2. Any patient who has had an acute illness
3. Obese patients and relatives of diabetics every three to six months.

ALWAYS MAKE URINE TESTS ONE TO THREE HOURS AFTER A MEAL

(*d*) See that a blood sugar test is made following every positive urine test.
(*e*) Participate in programs for such diabetes surveys as may be promoted by county or state medical societies, local, diabetes associations and the public health departments.

8. *In planning for mass surveys should an attempt be made to reach everyone in every community?*

Anyone may develop diabetes and to secure personal protection against preventable ill health, it is sound and feasible to promote the policy of a URINE TEST FOR *EVERY*-ONE EVERY YEAR. This can be accomplished if each practicing physician will average two or three urinalyses each day.

9. *If this policy of annual tests for every one cannot be achieved immediately, in what direction should efforts be aimed first?*

Tests should be sought in:
(*a*) Relatives of diabetics
(*b*) Obese individuals
(*c*) Adults over 40
(*d*) Individuals who feel below par.

10. *What methods are recommended for mass surveys?*

The American Diabetes Association recommends that arrangements for surveys should be organized only with the cooperation and participation of local, county and state medical societies.

In surveys which have been conducted in the past, the urine tests have been made by Benedict's method, the Cinitest or Galatest. The blood sugar tests have been made by the usual standard methods including the Folin-Wu and Somogyi methods.

The Wilkerson-Heftmann screening test will soon become available. It will quickly show the individuals who need a standard blood sugar test.

The Clinitest and Galatest methods for urinalysis are simple and time saving. The reagents must be fresh to give dependable results. Whenever the results are not clear cut, Benedict's test should be made.

It has been pointed out that the work of cleaning glassware can be eliminated in making urinalyses by collection of urine specimens in paper cups and by the use of Galatest.

Some mild cases of diabetes may not be discovered at the initial examination:

(*a*) Unless a test is made within 90 minutes of a full meal.
(*b*) Unless a blood sugar test is made in addition to the urinalysis.

When ideal arrangements cannot be made the minimum goal should be:

(*a*) A urinalysis for everyone at any time in the course of each year.
(*b*) A blood sugar test to follow every positive urine test.

For additional information write to: THE AMERICAN DIABETES ASSOCIATION, 1 Nevins Street, Brooklyn 17, N. Y.

The Committee on Diabetes Detection

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* Wilkerson and Heftmann, J. Lab. & Clin. Med. **33**: 236 (Feb.) 1948. Kit will be available from Eli Lilly Co., Indianapolis, Ind.

Bureau of Investigation

"DR." C. A. C. FAIMAN SENTENCED FOR FOOD AND DRUG VIOLATION

On Friday, October 1, C. A. C. Faiman of Dallas, Texas, was found guilty by a jury of having caused the introduction of certain misbranded drug products in interstate commerce. District Judge T. Whitfield Davidson of the Northern District of Texas thereupon sentenced him to two years in jail and turned him over to the custody of the attorney general. Faiman's attorney announced that an appeal would be taken, and bond in the sum of $5,000 was set for his liberty pending appeal.

Food and Drug inspectors testified that they watched Faiman ship the unlabeled tubes containing, as an analyst testified, potassium iodide and soft soap. The consignees were doctors of medicine, one in Arkansas and the other in Louisiana. A third doctor of medicine was named party defendant, but was acquitted at the direction of the court at the close of the government's case.

Faiman, however, was also posing as a doctor in Dallas. At one time he claimed graduation and a degree from the old St. Louis College of Physicians and Surgeons, which was involved in a diploma scandal culminating in revocation of its charter in 1927. Student lists for the years 1918-1921 did not, however, include his name. On the basis of the diploma he had obtained, he sought admission to examination for a license to practice medicine in Colorado, but the Board of Medical Examiners of that state refused to accept the credentials.

Faiman was first heard from, so far as the files of the Bureau of Investigation show, in Chicago, where he was operating the "National University of Sciences." He was then known as Charles C. Faiman, although he has also posed as Charles A. Faiman and Charles Andrew Claire Faiman. He was president of the "university," at least in 1925, when a bulletin describing its facilities indicated that it boasted such departments as arts and sciences, divinity, pharmacy, pathology and bacteriology, roentgenology, public health, medicine and surgery, midwifery, embalming and mortuary sciences, chiropractic and orthopraxy, law, music and dramatic arts.

In 1925 Faiman "confessed" to having given diphtheria germs to one William D. Shepherd, who was then indicted on the charge of having murdered William McClintock, his millionaire foster son. Shepherd, however, was acquitted of the charges by a jury in Chicago. In the publicity attending the sensational trial, it was brought out that the National University of Sciences being operated by Faiman was a "diploma mill."

Faiman was next heard from in Florida in 1929. In 1921 he had obtained a license to practice medicine in that state from the old Eclectic Board, four days after the board itself had gone out of existence. A leading member of the board proved

to be in the business of dispensing diplomas and licenses. This activity ended in a federal prosecution for him under the postal statutes, in which Faiman was a party defendant. He was not convicted, but his Florida license was finally revoked. In 1930 Faiman posed as a pathologist in St. Joseph, Mo. He was there for a few weeks, but departed without leaving a forwarding address.

Faiman's career in Dallas has covered at least the past ten years. That federal activity was necessary to interrupt his business is unfortunate. Cases such as his should really be local matters.

Medical Motion Pictures

FILM REVIEWS

In the Steps of the Great Physician. 16 mm., color, sound, 1,100 feet (1 reel), showing time thirty minutes. Produced in 1947 by Alan Shilla, Wai, Marathi, North India. Procurable on rental from: Missions Council, 287 Fourth Avenue, New York 10.

This film illustrates the activities of the medical staff and other hospital personnel at the Pierce Memorial Hospital in Wai, North India. While the patient is under treatment it shows his family cooking, cleaning and living on the hospital grounds.

The production is a good example of modern medicine and missionary groups working together to bring good medical care to these foreign areas. It can be recommended as a semi-entertainment film for county and state medical society meetings and for medical auxiliary groups.

The film was made by an amateur photographer whose mother was treated at this hospital. Considering the many local difficulties involved, the photography is very well done.

The following 16 mm., black and white, sound motion pictures are part of a series of five films produced in 1948 by Audio Productions, Inc., New York, for correlation with the Textbook of Healthful Living prepared by Harold S. Diehl, M.D., Dean of the Medical Sciences, University of Minnesota, Minneapolis. Procurable on purchase from McGraw-Hill Book Company, Inc., 330 West Forty-Second Street, New York 18, or procurable on rental from Y.M.C.A. Motion Picture Bureau, 206 South Michigan Ave., Chicago 4.

The Nose, Throat and Ears. 400 feet, showing time ten minutes.

Animated drawings are used to illustrate the normal functioning of the nose, throat and ears. The film clearly portrays the cause of complications arising from the use of nose drops, careless nose blowing and neglected colds. The pictorial presentation of the epiglottis in action is especially good; however, the pictorial presentation of the tonsil left much to be desired. This production is suitable for showing to high school and college students.

The Body Fights Bacteria. 500 feet (1 reel), showing time fourteen minutes.

The film opens with a picture of an exploding atomic bomb. It points out that bacteria may even be more harmful to human life than a bomb explosion. Bacilli, cocci and spirochetes are all shown, with the porcelain filter through which various viruses are known to pass. The ordinary method of growing bacteria on agar plates is demonstrated.

The defenses against bacteria set up by the skin, by the mucous membrane of the nose, throat and gastrointestinal tract, by the lymphatic system and by the blood system, both with its cells and antibodies, are shown. The development of antibodies in the blood through the natural process of having a disease is shown in animation. Artificial immunization through the inoculation of smallpox vaccine is used to illustrate active immunization. Temporary immunization against diphtheria in the presence of an already existing throat infection is demonstrated.

This film covers the subject of the body's defenses against bacteria in a somewhat elementary manner, which should be satisfactory to the average nonmedical person. It should be a useful teaching aid for college and high school students as well as other adult groups. The photography and animation are excellent

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Compensation of Physicians: Collection of Fee by Unlicensed Practitioner.—The plaintiff sued to recover money paid the defendant for certain medical services. From a judgment for the plaintiff the defendant appealed to the municipal court of appeals for the District of Columbia.

The plaintiff suffered from arthritis and went to see the defendant, who employed the title "professor" and who agreed to give the plaintiff a series of treatments at a cost of $440. According to the plaintiff, the defendant said that these treatments would cure her; according to the defendant, however, he told her that he believed that they would be of help. At any rate, the treatments, consisting of massaging and rubbing in of an ointment, were given, and the plaintiff paid $160 on account. She then refused to pay the balance and brought this action to recover that which had been paid. The defendant filed a counterclaim for the unpaid balance of $280.

The plaintiff's claim for recovery was based on the contention that the treatments administered by the defendant were in violation of the healing arts practice act, which defines "the healing art" as including "relieving, correcting or curing" or "attempting to prevent, relieve, correct, or cure any disease," and prohibits the practice of the healing art by anyone not licensed in accordance with the act. The act exempted from its provisions "the practice of massage . . . under the direction of a person licensed to practice the healing art." The evidence showed that the defendant was neither licensed to practice the healing art nor was he licensed to practice massage. We think it plain, said the court, that the treatments by the defendant, who is neither licensed nor acting under the direction of a licensed person, were in violation of the act, whether such treatments were given in an attempt to cure or to help the plaintiff's arthritic condition.

Considering first the defendant's counterclaim for the balance of his fee, the court said that the general rule is that an illegal contract, made in violation of a statutory prohibition designed for police or regulatory purposes, is void and confers no right on the wrongdoer. Consequently, the trial court properly ruled that the defendant was not entitled to recover the balance of the fee originally agreed on. With respect to the plaintiff's claim for a recovery of the sum which she had actually paid, the defendant contended that if the contract was in violation of the statute then no recovery can be had for money paid for illegal services which have been rendered. It has long been the law, said the court, that where an action is founded on an unlawful contract, the court will not interfere to relieve either of the parties thereto in an action against the other from the results thereof. However, the court continued, if the parties are not in pari delicto, and one of them has not been guilty of serious moral turpitude, he may repudiate the contract and recover what he has paid under it; and even though the party be considered technically in pari delicto he may be permitted to recover if the law in question was passed for his protection and it appears that the purposes of the law will be better effectuated by granting relief than by denying it. In the present case the court concluded that the plaintiff could not be considered in pari delicto with the defendant, but that even if she were it was apparent that the law was passed for the protection of the public, including the plaintiff, and that the purposes of the Act would not be effectuated by permitting the defendant to retain that which he ought not to have received. The public interests, the court concluded, are best served by requiring the defendant to pay back the fruits of his illegal agreement. Accordingly the court ruled that the defendant was not entitled to recover the balance of the fee agreed on and that the plaintiff was entitled to recover the amount which she had already paid. *Rubin v. Douglas*, 59 A. (2d) 690 (1948).

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Fort Wayne, Ind.

15:175-212 (June) 1948

Effect of Insulin on Motility of Stomach Following Bilateral Vagotomy. M. Feldman and S. Morrison.—p. 175.
Dysentery, Colitis and Diarrhea in Japanese Civilian Prison Camps in Philippines During World War II: II. Secondary Colitis—Postdysenteric and Nondysenteric Animal Parasites. F. G. Haughwout.—p. 176.
Anterior Pituitary and Pancreas. J. Wilder.—p. 183.
Allergic Conditions in Hepatitis. O. C. Pribram.—p. 199.
Tumors Arising in Brunner's Glands. A. O. Wilensky.—p. 206.

American Journal of Ophthalmology, Chicago

31:667-772 (June) 1948

Surgical Treatment of Pterygia Followed by X-Ray Therapy to Prevent Recurrence. H. L. Hilgartner, R. T. Wilson and J. D. Wilson.—p. 667.
*Capillary Fragility and Cutaneous Lymphatic Flow in Relation to Systemic and Retinal Vascular Manifestations: Rutin Therapy. J. M. Donegan and W. A. Thomas.—p. 671.
Mild Glaucoma. A. Posner and A. Schlossman.—p. 679.
Comparison of Aniseikonic Test Instruments and Prolonged Induction of Artificial Aniseikonia. P. W. Miles.—p. 687.
Size of Line in Maddox-Rod Test. R. G. Scobee and E. L. Green.—p. 697.
*Regeneration of Corneal Stromal Cells: I. Technic for Destruction of Corneal Corpuscles by Application of Solidified (Frozen) Carbon Dioxide. A. E. Maumenee and W. Kornblueth.—p. 699.
Treatment of Phorias in Adults. Electra Healy.—p. 703.
*Tissue Research and Cell Culture of Cornea. Doris Hoof.—p. 709.
Comparison of Eye Conditions Among 1,000 Reading Failures, 500 Ophthalmic Patients, and 150 Unselected Children. T. H. Eames.—p. 713.
Sleep with Half-Open Eyes (Physiologic Lagophthalmus). A. Fuchs and F. C. Wu.—p. 717.
Intraocular Pressure of Normal and Glaucomatous Eyes as Affected by Accessory Light Stimuli. R. B. Zaretskaya.—p. 721.

Capillary Fragility and Rutin Therapy.—Donegan and Thomas administered rutin to 81 patients. Forty-five of these had diabetes mellitus, and the other 36 had a variety of ocular and general disturbances. Capillary fragility was found to be abnormally increased in arteriosclerosis and hypertension, to a greater extent in diabetes mellitus, and most markedly in diabetic persons with retinopathies. Rutin has been found to decrease capillary fragility, but not to normal levels in diabetic persons with retinopathies. Although no significant improvement in vision or decrease in retinopathy was observed in diabetes after rutin therapy, it may be significant that neither loss of vision nor increase in retinopathy occurred during ten to twelve months' treatment. Rutin appears to be of benefit in the treatment of Eales's disease and central serous retinopathy.

Regeneration of Corneal Stromal Cells.—Maumenee and Kornblueth point out that regeneration of the cornea has been extensively studied in the past, but, although the origin and mode of replacement of the epithelium, endothelium, and Descemet's membrane is clearly understood, there is still a difference of opinion about the origin of the corneal stromal cells. The authors describe a method for studying regeneration of stromal cells which appears to be superior to the method previously used. Their method destroys the corneal stromal cells without disrupting the corneal lamellae. It employs solidified carbon dioxide (dry ice), absolute alcohol and a solid metal rod. Freezing various sized areas of the cornea to minus 78 C. for three to five seconds produces a convenient lesion for the study of regeneration of the corneal stromal cells. These lesions do not disrupt the corneal lamellae, are not prone to secondary infection and cause little inflammatory reaction. After the lesions have healed the cornea is clear.

Corneal Tissue Research and Cell Culture.—Hoof says that the aim of keratoplasty is to create conditions whereby the host cornea will accept the transplanted material completely so that a later cloudiness, which so often develops in transplantations of the same species but of different blood groups, will not mar the end result. She reasons that if the transplant is kept alive by means of slowly growing cell culture and of the plasma content of the blood of the recipient is increased before the transplant is made, the original structure of the albumin of the transplant could be so changed that it would gradually become assimilated with the albumin of the host. Whether the corneal graft continues to live as an independent tissue or is replaced by regenerated corneal tissue of the host has never been definitely settled. The author describes preliminary experiments in tissue culture which show the possibility of growth of the parenchyma cells out of the substantia propria. They would seem to substantiate the theory that the corneal graft lives as an independent tissue within the host's cornea.

Bulletin of the Los Angeles Neurological Society

13:69-128 (June) 1948

Neurologic Manifestations of Jaundice in Newborn with Particular Reference to Chronic Residuals. L. B. Mann Jr. and C. B. Courville.—p. 69.
Hyperostosing Osteoma of Skull: Report of Case with Consideration of Its Relationship to Other Types of Cranial Osteomas and Hyperostoses. C. B. Courville and H. G. Crockett.—p. 86.
Streptomycin Therapy: Pathologic Basis of Vestibular Disturbances. J. M. Nielsen and C. Marsh.—p. 99.
Polioencephalitis Hemorrhagica Superior: Brief Review. V. J. Miller.—p. 104.

Bulletin New York Academy of Medicine, New York

24:411-478 (July) 1948

*BCG and Newer Epidemiology of Tuberculosis. K. Birkhaug.—p. 411.
*Primary Atypical Pneumonia and Influenza: Diagnosis, Prevention, Treatment. F. L. Horsfall Jr.—p. 431.
Mutational Prophylaxis. H. J. Muller.—p. 447.

BCG and Epidemiology of Tuberculosis.—According to Birkhaug, experimental studies and clinical experience prove that a spontaneous primary infection with tubercle bacilli, which renders the organism hypersensitive to tuberculin, confers a relatively significant resistance against a subsequent tuberculous infection. The first victims of tuberculous disease are tuberculin-negative persons who have escaped a spontaneous and nonprogressive primary tuberculous infection. A result of the modern trend to defer the primary tuberculous infection from childhood to adult life is an increasing tendency among tuberculin-negative persons of early adult age to contract serious clinical tuberculosis when they are intimately exposed to infection with tubercle bacilli. This trend in the epidemiology of tuberculosis has brought about a reorientation toward the use of artificial immunization against tuberculosis by means of BCG. Although there is no definite statistical proof of the effectiveness of BCG under rigidly controlled conditions in man, such evidence is highly suggestive in animal experimentation; universal unanimity obtains as to its harmlessness and near unanimity in regard to its affording almost complete protection against the clinical manifestations of postprimary tuberculosis in children and an incomplete but highly significant protection against clinical pulmonary tuberculosis in adults. The author believes that BCG vaccine should be recommended for extensive use in the United States in tuberculin-negative reactors, in groups occupationally exposed to tuberculous infection, in population groups with high mortality and morbidity due to tuberculosis and where there has been a known exposure to tuberculosis or where an exposure is likely to occur.

Primary Atypical Pneumonia and Influenza.—Horsfall lists the incidence of symptoms in 50 per cent or more of the patients with either of the two disorders. There are five such symptoms. Three of these, headache, chills and malaise, occur with approximately similar frequencies in both illnesses. Cough is much more common in atypical pneumonia than in influenza, and if cough is absent, the diagnosis of atypical pneumonia should be questioned, because these patients usually complain that cough causes more discomfort than any other symptom. Although cough occurs commonly in influenza, it is seldom distressing.. The production of sputum also is much more common

in atypical pneumonia than in influenza. Fever is almost invariably present in both illnesses, and nasal congestion is also common in both. Altered breath sounds, usually rough or harsh, are heard in over two thirds of patients with atypical pneumonia, but only in about 1 patient in 10 with influenza. Slight dulness is elicited in over 50 per cent of patients with atypical pneumonia but only in about 13 per cent of patients with influenza. Whereas primary atypical pneumonia occurs throughout all months of the year, influenza occurs chiefly during the winter months. The incidence of atypical pneumonia seldom exceeds 0.25 to 1 per cent, whereas during epidemics influenza may have an incidence ranging from 5 to as high as 40 per cent. The incubation period of atypical pneumonia ranges between ten and fifteen days, whereas in influenza it is only one or two days. In atypical pneumonia symptoms develop gradually; in influenza the onset is abrupt. Agglutinins which react at refrigerator temperature with human group 0 erythrocytes are found during convalescence in 20 to 80 per cent of patients with atypical pneumonia. Agglutinins against streptococcus MG also develop during atypical pneumonia in 20 to 80 per cent of patients, but are not produced in influenza. The development of antibodies against either influenza A or B viruses is demonstrable in 70 to 95 per cent of patients with influenza, but such antibodies do not develop during atypical pneumonia. There is no specific prophylactic measure which increases resistance to atypical pneumonia. The relative immunity which follows the injection of influenza virus vaccine probably is not of long duration and may not be effective against virus strains which are widely different from those present in the vaccine.

Cancer Research, Baltimore

7:605-668 (Oct.) 1947. **Partial Index**

Oral Carcinoma in Monkey Colony: Report of 2 Additional Cases. H. Klüver and A. Brunschwig.—p. 627.
Antibody Response to Tumor Inoculation in Mice with Special Reference to Partial Antibodies. P. A. Gorer.—p. 634.
Uptake of Radiophosphorus in Phospholipid Fraction of Mouse Epidermis in Methylcholanthrene Carcinogenesis. C. J. Costello, C. Carruthers, M. D. Kamen and R. L. Simoes.—p. 642.
Distribution and Growth-Potency of Cells in Transplantable Sarcoma. P. A. Zahl and M. L. Drasher.—p. 658.
Influence of 2,3-Dimercapto Propanol (BAL) on Induction of Skin Tumors in Mice by 3,4-Benzpyrene. L. M. Lusky, H. A. Braun and G. Woodard.—p. 667.

Experimental Medicine and Surgery, Brooklyn

6:125-328 (May-Aug.) 1948. **Partial Index**

Phototurbidometric Determination of Trypsin. M. H. E. Friedman.—p. 149.
Effect of Steroid Hormones on Carcinogenic Activity of Benzyprene. H. S. Kupperman and R. B. Greenblatt.—p. 156.
Relations Between Bone Matrix and Endocrine System: Clinical and Therapeutic Study. E. Vergara S.—p. 167.
Effect of Penicillin Upon Coagulability of Blood. M. Weiner, K. Zeltmacher and S. Shapiro.—p. 181.
Experimental Allergic Myocarditis. R. Jaffe and E. Holz.—p. 189.
Vacuoles in Paget's Disease. E. Meirowsky.—p. 203.
Intrathoracic Electrocardiography in Patients with Pneumothorax. F. M. Groedel and P. R. Borchardt.—p. 213.

Georgia Medical Association Journal, Atlanta

37:205-242 (June) 1948

Ollier's Disease: Report of Case. R. W. Dickson and Shirley M. Cohen.—p. 205.
Eclampsia. R. E. Jones.—p. 207.
Reaction to Blood Transfusion. J. P. Heard.—p. 212.
Complications of Blood Transfusion. B. Bowman.—p. 217.
Cryptorchidism. R. Coffer.—p. 221.
*Alopecia Areata as Conversion Symptom. R. E. Peck.—p. 226.
X-Hay Fever of South. M. B. Wine.—p. 227.
Presentation of President's Gold Key to Steve Paschal Kenyon. J. C. Patterson.—p. 228.

Alopecia Areata as a Conversion Symptom.—Peck cites 4 patients in whom alopecia areata occurred as the initial symptom of a generalized neurosis. In 2 the onset of alopecia areata was associated with sudden and overwhelming fright. In the other 2 it was associated with the onset of chronic anxiety. In 1 patient the mechanism seems clearly that of a conversion symptom. This same mechanism may be postulated in the other 3, as conversion symptoms are frequently seen in the ordinary traumatic anxiety neurosis and anxiety hysteria.

Illinois Medical Journal, Chicago

93:285-342 (June) 1948

The Challenge of Organized Medicine in a Changing Social Order. I. H. Neece.—p. 298.
Psoriasis, with Special Reference to Etiology and Treatment. H. M. Hedge.—p. 303.
Complications of Arrested Pulmonary Tuberculosis. A. Froman.—p. 306.
Theporin a New Antihistaminic. J. Peters.—p. 314.
*Tularemia and Undulant Fever Treated with Atabrine. D. H. Ecke and D. H. Ecke.—p. 318.
Organization of Blood Bank. S. O. Levinson.—p. 320.
Choosing Therapy for Breast Cancer Patient. S. M. Wolffson.—p. 322.
Solitary Pyogenic Abscess of Liver: Report of Case Due to Anaerobic Streptococci Cured by Penicillin. G. O. Wellman.—p. 327.

Quinacrine Hydrochloride in Tularemia and Undulant Fever.—During the past three years D. H. Ecke, the senior author, observed 8 patients with typical symptoms of ulceroglandular tularemia. Every case was traced to the handling of rabbits a few days before. The patients were given a supply of 1.5 grain (0.1 Gm.) quinacrine tablets with instructions to take one tablet three times a day for five days. Iodized ointment was prescribed for external application to the ulcers. Without exception quinacrine produced favorable results within one to three days, and no patient required treatment after the fifth day. These favorable results induced the senior author to try medication with the same dose of quinacrine hydrochloride (one tablet of 1.5 grains three times a day, for five days) in 4 patients infected with Brucella abortus. Here again the results were encouraging in that a recurrence developed in only 1 of the 4 patients after an interval of several years. Either streptomycin was not available or the patients could not afford the expense involved.

Journal of Lab. and Clinical Medicine, St. Louis

33:651-788 (June) 1948

Production of Temporary Diabetes Mellitus in Man with Pituitary Adrenocorticotropic Hormone; Relation to Uric Acid Metabolism. J. W. Conn, L. H. Louis and C. E. Wheeler.—p. 651.
Comparative Study of Serum Albumin-Globulin Ratio, Cephalin-Cholesterol Flocculation, and Thymol Turbidity Tests for Liver Function. A. C. Kibrick and A. B. Clements.—p. 662.
Dilution Turbidity Test in Serum in Comparison with Thymol Turbidity and Cephalin-Cholesterol Flocculation Tests. F. Dreyfuss.—p. 672.
Experimental Studies on Intravenous Injection of Fat Emulsion into Dogs. H. C. Meng and S. Freeman.—p. 689.
*Hemophilia: Current Theories and Successful Medical Management in Traumatic and Surgical Crises. C. Wright, C. A. Doan, V. A. Dodd and J. D. Thomas.—p. 708.
Experimental Study of Comparative Action of Heparin and Dicumarol on In Vivo Clot. L. Loewe, E. Hirsch, D. M. Grayzel and Florence Kashdan.—p. 721.
Effect of Diethylstilbestrol on Blood Lipids and Development of Atherosclerosis in Chickens on Normal and Low Fat Diet. L. Horlick and L. N. Katz.—p. 733.
Effects of Tetraethylammonium Chloride on Blood Flow in Extremities of Man. O. L. Slaughter, H. S. Brown and K. G. Wakim.—p. 743.
False Positive Tests for Syphilis: Further Study of Their Incidence in Sporozoite-Induced Vivax Malaria. J. F. Kent, W. B. Culwell, G. R. Coatney and W. C. Cooper.—p. 747.
Transient Positive Wassermann Test for Syphilis in Acute Hemolytic Anemia. M. A. Rubenstein.—p. 753.
Purification of Diphtheria and Tetanus Antitoxin by Use of Pepsin. A. Glaubiger.—p. 757.
Antireticular Cytotoxin Serum in Treatment of Arthritis. W. M. Solomon and R. M. Stecher.—p. 768.
Thiocyanate Content of Saliva in Normal and Hypertensive Subjects Before and After Ingestion of Drug. E. J. Fischmann and A. Fischman.—p. 772.

Hemophilia: Medical Management.—In reviewing the therapeutic management of 43 patients with hemophilia over the past seventeen years in the departments of medicine and surgery of Ohio State University Wright and his co-workers differentiate three distinct periods: The first was characterized by the use of nonspecific measures most of which aimed toward increasing the available circulating thromboplastin. These included snake venom, ovarian hormones, placental extracts and foreign protein sensitization, with horse serum or egg albumin as antigens. In the second, despite the use of these measures the continuing necessity for supportive, replacement blood transfusions during acute hemophilic bleeding episodes finally led to the recognition that, of any measure then advocated, whole fresh blood produced the most effective, even though transitory, reduction in the prolonged coagulation time. That fresh or frozen normal human plasma is just as effective as whole fresh blood was demonstrated shortly thereafter. During the third period, World War II gave great impetus to the chemical par-

tition, isolation and therapeutic study of particular fractions from human and bovine blood plasma. As a by-product of these researches has come a so-called antihemophilic fraction of human plasma, which is bringing new hope not only for the better clinical management of hemophilia, but also for the ultimate solution of the problem of the physiology and biochemistry of this disease entity. Studies with the concentrated antihemophilic fraction of Cohn were initiated by the authors early in 1946, when material for clinical studies was made available. Selected cases from their clinical studies are presented to illustrate (1) the comparative effectiveness of the antihemophilic fraction I of Cohn versus freshly thawed plasma in promoting clot formation and (2) the possibility of successful medical management of the hemophilic patient during both elective and emergency surgical treatment.

Journal of Nervous and Mental Disease, New York

107:501-596 (June) 1948

Eight Years Psychiatric Work in England. W. Sargant.—p. 501.
Electroshock Therapy, Clinical and Electroencephalographic Studies. A. Mosovich and S. Katzenelbogen.—p. 517.
Psychometric Changes During Electric Shock Treatment. L. B. Lubor-sky.—p. 531.
Electro-Encephalogram in Cerebral Complications of Infectious Mononucleosis: Report of Case. N. A. Bercel.—p. 537.
Management of Islet-Cell Tumors of Pancreas Correlated with Neuropsychiatric Phenomena. H. L. Mitchell, J. A. Malcolm, D. P. Greenlee and R. C. Hamilton.—p. 545.
Social and Clinical Features of Chronic Alcoholism: Based on Study of 231 Male Patients. M. Ellermann.—p. 556.
Dynamic Neurology. C. D. Aring.—p. 569.
Case Study of Proselyte from Catholicism to Judaism. W. H. Kupper and Bella G. Rubin.—p. 575.
*Electric Shock Treatment in Advanced Pregnancy. J. L. Simon.—p. 579.

Electric Shock Treatment in Pregnancy.—Although electric shock treatment is of value in many psychiatric disorders, its advisability in advanced pregnancy is still questioned. Of the 3 pregnant women reported by Simon 2 were treated during the advanced stage of pregnancy. In 1 of these 2 the last of fourteen shock treatments was given ten days before delivery. In the other case the last of thirteen convulsions preceded delivery by twenty-nine days. Both of these women delivered healthy babies. The other woman had received the last electric shock treatment seven months before delivery. Her infant died two days after birth. The authors believe that the death of this infant had probably no connection with the shock treatment of the mother.

Journal of Thoracic Surgery, St. Louis

17:283-418 (June) 1948

Augmented and Controlled Breathing in Transpleural Operations. F. R. Mautz, C. S. Beck and H. F. Chase.—p. 283.
*Cancer of Lung: Interval and Late Results of Operation in Relation to Topography and Gross Pathology. H. Neuhof and A. H. Aufses. —p. 297.
*Carcinoma of Lung: Factors Affecting Survival After Resection of Cancer of Lung. R. Adams.—p. 306.
Effect of Pulmonary Inflation and Deflation on Circulation. S. A. Thompson.—p. 323.
Regeneration of Defects of Trachea and Bronchi. Experimental Study. R. A. Daniel Jr.—p. 335.
*Eosinophilic Granuloma of Rib. E. Maurer and G. A. DeStefano. —p. 350.
Bronchospirography: Apparatus and Technic. C. M. Norris, Joan Long and M. J. Oppenheimer.—p. 357.
Contralateral Fracture of First and Second Ribs Following Thoracoplasty. A. Guggenheim and B. N. E. Cohn.—p. 366.
Pneumolysis for Cure of Tension Pneumothorax. J. W. Cutler.—p. 374.
Myoblastoma of Bronchus. A. R. Kraus, P. J. Melnick and J. A. Weinberg.—p. 382.
Self-Retaining Scapula Retractor for Thoracoplasty. O. C. Brantigan and T. B. Aycock.—p. 390.
War Wounds of Esophagus. G. N. J. Sommer Jr. and C. E. O'Brien. —p. 393.
Spontaneous Hemopneumothorax Treated by Decortication: Case Report. P. D. Elrod and J. D. Murphy.—p. 401.
Hemangioma of Lung: Review of Four Cases, Including Two Not Previously Reported, One of Which Was Complicated by Brain Abscess Due to H. Influenzae. G. E. Wodehouse.—p. 408.
Use of Oxidized Cellulose in Pleural Symphysis. J. D. Murphy and J. R. McDaniel.—p. 416.

Cancer of the Lung: Late Results of Operation.—Neuhof and Aufses point out that at previous meetings of the American Association for Thoracic Surgery a topographic classification of cancer of the lung was proposed and arguments were advanced to support their contention that the classification should be used as a basis for operability and prognosis. They now submit an analysis of the results of operations based on such a classification. Their observations were made on 52 patients who survived operation. The operations performed in each of three groups were: group I, twenty pneumonectomies and one lobectomy; group II, twelve lobectomies and six pneumonectomies; group III, twelve lobectomies and one pneumonectomy. In group I (cancer of the main bronchus), there were no survivals in patients with extensive regional node involvement. Involvement was limited, or absent, in the 7 patients who survived. In group II (circumscribed cancer), involvement of lymph nodes at the time of operation was rare; yet lymph node metastasis as the cause of death was unexpectedly high. Lobectomy is not curative in the presence of lymph node involvement. Despite the absence of regional node involvement, the results were poor in group III (peripherally invasive cancer), because of local recurrence, usually in the thoracic parietes. Results might be better with wider excision of the thoracic wall. The microscopic features of cancer of the lung bear no significant relation to the ultimate postoperative prognosis. The prognosis after a correctly selected operation for circumscribed cancer of the lung is better than that for cancers of the main bronchus. Lobectomy may be curative for circumscribed and peripherally invasive carcinoma of the lung. Good results have been achieved by pneumonectomy or more conservative operations on the basis of the topographic features of the neoplasm. Enthusiasm for surgical treatment of pulmonary cancer is justified when eradication is based on the topographic features.

Survival After Resection for Carcinoma of Lung.—Adams says that in a fifteen year period diagnosis of carcinoma of the lung was established by microscopic proof in 182 cases at the Lahey Clinic. A resection of the lesion by pneumonectomy or lobectomy was done in 56 cases. Eight of these 56 patients died postoperatively. The over-all hospital mortality of 14.3 per cent has been reduced during the last five years to 5.1 per cent in thirty-nine resections. Of the remaining 48 patients, 17 were operated on five or more years ago; of these 6 survived over five years and 4 are now living and well after more than five years. A patient who has a resection and survives the operative procedure has approximately a 60 per cent chance of surviving for one or more years. Thereafter, the rate of death from recurrence is directly related to the preoperative duration of symptoms for epidermoid carcinoma. In other varieties, the cell type is of greater prognostic significance. The survival rate in patients for whom lobectomy was selected has been as good as for patients treated by pneumonectomy. The absence of involved nodes increases three fold a patient's chance of being alive and well five years after resection. The cell type of carcinoma found by microscopic examination is the most important single consideration in estimation of prognosis after a resection. If the growth is undifferentiated or oat cell carcinoma in type, less than a year of life may be expected.

Eosinophilic Granuloma of Rib.—Maurer and DeStefano say that approximately 39 cases of eosinophilic granuloma have been reported to date. Only 6 of these lesions have been solitary in the rib. The authors present the case of a boy, aged 16, in whom osteogenic sarcoma of the rib was suspected. Focal osteomyelitis and giant cell tumor were also considered in the differential diagnosis. Excision of the fifth rib, transverse process, intercostal muscle and pleura was performed. A soft, yellowish red tumor mass was encountered completely replacing the normal structure in the vicinity of the angle of the fifth rib. Microscopic examination revealed a typical granulomatous appearance. The condition was diagnosed as eosinophilic granuloma of the rib. The convalescence was uneventful. The patient was well ten months later and presented no evidence of recurrence. Eosinophilic granuloma appears to be a benign lesion of bone which most commonly affects children, adolescents and young adults, especially males. Local tenderness and pain with or without swelling are common symptoms. There may be systemic manifestations including pyrexia, general malaise, loss of weight and leukocytosis with eosinophilia. It is more common for the lesion to be completely silent until discovered on the roentgenogram as a destructive process. The roentgenographic appearance of the individual lesion of bone is that of a small or large irregularly destructive radiolucent zone. This lesion is easily confused with neoplasm and osteomyelitis. Since

the final diagnosis is not usually made until histologic examination of the tissue has been completed, one cannot know the course of a solitary lesion which closely resembles neoplasm if it were left undisturbed. Eosinophilic granuloma of bone appears to offer an excellent prognosis despite its rapid development, seemingly progressive nature and ominous roentgenographic appearance. The postoperative observations ranging from seven months to six years made by Jaffe and Lichtenstein on patients treated by excision, curettage and radiation therapy have all been encouraging. The prognosis should, however, be guarded in cases in which multiple lesions are encountered. In such situations, visceral lesions should be sought for and careful consideration given to the possibility of Letterer-Siwe disease.

Kansas Medical Society Journal, Topeka

49:189-228 (May) 1948

Diabetic Neuropathy. A. Marble.—p. 189.
Congenital Absence of Left Coronary Artery: Occlusion of Anomalous Branch of the Right Coronary Artery; Pulmonary Embolism. S. M. Wilson.—p. 192.
Cancer of Larynx: 10 Year Review of 74 Cases. W. Barry.—p. 195.
*Creeping Eruption in Kansas. O. S. Walters.—p. 197.

Creeping Eruption in Kansas.—Walters says that creeping eruption, a cutaneous lesion produced in the human skin by the third stage larva of a hookworm, has been regarded as peculiar to the South, especially to the Gulf states. He describes 10 cases of creeping eruption which he observed in Kansas in the course of two years. The lesion produced by the larva is a linear, serpiginous burrow. The track is 1 to 2 mm. wide, red and raised. Vesicles may be formed along the course of the tortuous tunnel. The parasite travels from one to several centimeters a day. The area of the lesion itches intensely. Most of the patients treated by the author responded to freezing with ethyl chloride. Intramuscular injections of 0.5 to 3.5 cc. of stibophen in increasing doses were effectively used in 2 patients, in 1 of them in conjunction with ethyl chloride.

Medical Annals of District of Columbia, Washington

17:311-370 (June) 1948

Streptomycin: Review of Basic Principles and Their Clinical Application. H. L. Hirsh, J. J. Vivino and H. F. Dowling.—p. 311.
Evaluation of Peptic Ulcer Problem. Sara M. Jordan.—p. 326.
Appraisal of Operations for Peptic Ulcer. J. P. Shearer and D. W. Mitchell.—p. 334.
*Culpability for Delay in Management of Cancer. D. E. De Lawter. —p. 342.

Delay in Management of Cancer.—De Lawter investigated delay and culpability for delay in the diagnosis and management of cancer. The cases analyzed were obtained from records of interviews at the Warwick Memorial Clinic from 1946 to 1948. The patient was unaware that any but routine questions were being asked. The questions were as follows: 1. What was the first thing you noted? 2. When did you notice it? 3. What did you think it was? 4. What did you do about it? 5. When did you do it? 6. When did you first consult a physician or seek medical care? 7. To whom did you go (physician, radiologist, chiropractor, surgeon, etc.)? 8. What did he do about it? 9. When did he do it? 10. Was a piece of tissue removed for examination? When? 11. What did he advise? 12. Did you follow that advice? 13. Of what did the treatment consist? 14. When was treatment started? 15. By whom was treatment started? A total of 420 cases were investigated in this manner, and the impression was gained that progress is being made in reducing the delay in the diagnosis of cancer. The causes for delay between diagnosis and treatment in these cases were: (1) delay by the institute's ruling not to accept the pathologic interpretation of the biopsy obtained at another institution; (2) delay by pathology department in arriving at a diagnosis; (3) delay of specimens and reports in interdepartmental transit; (4) delay between clinic appointments and consultations because certain clinics are held only at weekly intervals; (5) delay because general physical condition of the patient would not safely permit immediate institution of treatment; (6) delay in obtaining a hospital bed or operating room for treatment, and (7) delay by patient in accepting therapy advised. The delay between completion of diagnosis and institution of treatment was excessive in 45.7 per cent of the cases studied. No case of delay was found to be specifically due to lack of finances.

Military Surgeon, Washington, D. C.

102:427-528 (June) 1948. **Partial Index**

Human Pathologic Anatomy of Ionizing Radiation Effects of Atomic Bomb Explosions. E. DeCoursey.—p. 427.
Derivatives of Thalamus Ventralis in Human Brain and Their Relation to So-Called Subthalamus. H. Kuhlenbeck.—p. 433.
Pathology of Peripheral Nerve Injuries. W. Haymaker.—p. 448.
Carcinoma of Lip: Preliminary Analysis of 330 Cases with Follow-Up of from 3 to 36 Years. J. L. Bernier and Mardelle Clark.—p. 474.
Present Status of Neuropsychiatry in Army. J. M. Caldwell.—p. 479.
Negative Acceleration. R. S. Shaw.—p. 483.
Auscultatory Variations in Routine Cardiac Examination. J. P. Merrill. —p. 487.
*Report of Case of Stevens-Johnson Disease. I. L. Hoffman and T. E. Stone.—p. 494.

Stevens-Johnson Disease.—Hoffman and Stone point out that Stevens and Johnson in 1922 described a "new" eruptive fever associated with stomatitis, ophthalmia, cutaneous eruption and constitutional symptoms. The authors report a case in a native-born Hawaiian aged 17. The patient had a sore throat and signs of nasopharyngitis with a temperature of 104 F. He had a nonproductive cough. The patient had three previous episodes of a similar nature involving the mouth and genitalia. With symptomatic treatment the temperature became normal on the fourth day, but on the sixth day it rose to 105 F.; it slowly decreased until it became normal eight days later. On the sixth hospital day ulcerated, membranous and vesicular lesions appeared on the tongue, gingivae and buccal mucosa. These areas became confluent and involved the lips. On the eighth hospital day vesicles appeared on the skin of the genitalia, forearms and legs with occasional discrete lesions on the trunk. Severe bilateral, conjunctivitis developed which subsided in ten days. New cutaneous lesions continued to appear. These lesions started as small erythematous macules, which became edematous, later vesicular or bullous, and still later hemorrhagic or purulent. The glans penis became involved, culminating in acute balanitis. After various laboratory examinations the case was diagnosed as one of severe Stevens-Johnson type, due perhaps to hypersensitivity to streptococcic pharyngitis. Treatment consisted in administration of penicillin by injection and spray and in ointment. During the acute stage the patient was also given sulfadiazine. Vitamins were given by injection and by mouth. The authors raise the question whether cutaneous testing with streptococcus allergens with desensitization with positive allergens might ward off future attacks.

New England Journal of Medicine, Boston

238:821-856 (June 10) 1948

Shattuck Lecture: Surgery in the Aged. C. S. Welch.—p. 821.
*Bronchiectasis Following Aspiration of Timothy Grass: Report of 8 Cases. M. G. Carter and K. J. Welch.—p. 832.
Coexisting Pulmonary Coccidioidomycosis and Tuberculosis. R. S. Study and P. Morgenstern.—p. 837.
Malaria Relapse: Report of Case Thirty-Six Years After Original Infection. D. K. Spitler.—p. 839.
Pilonidal Cyst and Sinus. J. Liburt.—p. 840.
Bronchiogenic Squamous-Cell Carcinoma of Right Upper Lobe. Kyphoscoliosis. Cor pulmonale.—p. 844.
Multiple Pulmonary Emboli. Thrombi of Right Ventricular Endocardium. Thrombosis of Left Popliteal Vein.—p. 847.

Bronchiectasis Following Aspiration of Timothy Grass.—Carter and Welch say that children often aspirate vegetable foreign bodies into the tracheobronchial tree. They report observations on 8 cases of timothy grass aspiration. These patients were observed between October 1942 and March 1947. The ages varied from 1 year and 2 months to 14 years. A well established or highly suggestive history of foreign body aspiration was obtained from 5 patients. All 5 patients had immediate symptoms. Intermittent fever was always present. Cough was prominent in 7 patients, loss of weight in 4 and abdominal pain in 1. An initial diagnosis of pneumonia was made in 5 cases. The possibility of a foreign body was suggested in only 2 of the 8 patients when first seen. When roentgenograms were obtained the diagnosis of pneumonitis, atelectasis, pneumonia or abscess was made. Prolonged symptoms ultimately led to bronchoscopy in 7 cases. In 3 of these the timothy head was recovered, but in 4 of them the foreign body was not found in spite of multiple bronchoscopies. Recovery was apparently complete in 1 patient after bronchoscopic removal of timothy. The remaining 7 required lobectomy because of bronchiectasis

or pulmonary abscess. The uneventful convalescence of these 7 patients illustrate the low risk of lobectomy in young patients. Even though the presence of a foreign body cannot be established, recurrent hemoptysis from an obviously damaged lobe or known bronchiectasis should be an indication for surgical treatment when tuberculosis has been excluded.

New York State Journal of Medicine, New York

48:1201-1312 (June 1) 1948

Penicillin Treatment of Early Congenital Syphilis. D. Moon-Adams and Charlotte Marker.—p. 1245.
Obesity and Hypertension. M. B. Green and M. Beckman.—p. 1250.
Clinical Studies in Jaundice: Use of Sedimentation Rate Determinations in Convalescent Stage of Infectious Hepatitis. A. A. Goldbloom, A. Lieberson and C. D. Rosen.—p. 1254.
Psychiatric Aspects of Everyday Practice of Medicine. R. Seidenberg.—p. 1256.
Prostatectomy—Suprapubic and Transurethral. J. L. Mangiardi and A. Harris.—p. 1261.
Intestinal Obstruction Complicating Pregnancy. S. A. Siegel and N. Pleshette.—p. 1264.
*Should Cardiac Patients Be Permitted to Travel by Air? W. D. Schmidt.—p. 1267.
Combined General and Local Anesthesia for Vaginal Delivery. E. A. Graber and S. Druce.—p. 1269.
Pneumonia in Small General Hospital. P. A. Burgeson.—p. 1271.
Sulfasuxidine in Postoperative Care of Anorectal Conditions. I. Skir.—p. 1274.
Operative Treatment of Massive Rectal Prolapse. L. Breidenbach and J. W. Lord Jr.—p. 1275.
Shock in Acute Myocardial Infarction. H. Greisman and S. Z. Rosenfield.—p. 1277.
Maternal Mortality at Bronx Hospital. J. I. Kushner.—p. 1279.

Cardiac Patients and Travel by Air.—Schmidt outlines some of the dangers confronting patients with cardiac disease who travel by air. He believes that for some types of disturbed cardiovascular function travel by air can have serious consequences, while for other cases it may be perfectly harmless. The advice given to a patient with cardiac disease should be based on evaluation of the individual patient's cardiovascular status, with particular attention to the relative sufficiency of his coronary circulation and the adequacy of his pulmonary gas exchange and oxygen-carrying power of the blood.

North Carolina Medical Journal, Winston-Salem

9:233-282 (May) 1948

Psychiatry in the Modern Medical School. A. H. Ruggles.—p. 233.
Hemoglobinuric or Tubular Nephrosis (Acute Parenchymatous Nephritis). V. H. Moon.—p. 238.
Tubular Nephrosis: Clinical Consideration. G. G. Duncan.—p. 242.
Lung Abscess: Review of 49 Cases. Felda Hightower and H. H. Bradshaw.—p. 248.
Modern Conception of Liver Diseases. W. B. Dewar.—p. 252.
Chronic Glomerulonephritis Without Hypertension, Cardiac Enlargement or Retinal Changes: Case Report with Necropsy Findings. C. G. Gaddy and D. Cayer.—p. 256.
Mucocele of Vermiform Appendix with Report of 3 Cases. W. B. McCutcheon and R. D. Baxley.—p. 260.

9:283-322 (June) 1948

Changing Trends in Medicine. H. S. Willis.—p. 283.
Program of Postlobotomy Reeducation and Rehabilitation. J. A. Farmer.—p. 287.
Technic to Reduce Blood Loss During Cesarean Section. F. M. Dula.—p. 291.
Review of Treatment of Subacute Bacterial Endocarditis: Report of Unusual Case. M. T. Gilmour, H. H. Hodges and J. B. Johnston Jr.—p. 296.
Early Ambulation in Abdominal Surgery. F. M. S. Patterson and J. J. Richardson.—p. 301.
Does Effectiveness of Influenzal and Rickettsial Vaccines Justify Their Use? Bennette B. Pool.—p. 304.
Antemortem Diagnosis of Bilateral Renal Agenesis. J. U. Gunter and F. S. Oser.—p. 307.
*Atabrine [Quinacrine] in Treatment of Trichomonas Vaginitis. F. M. Dula.—p. 309.

Quinacrine in Trichomonas Vaginitis.—In search for a chemical agent with which to combat vaginitis due to Trichomonas, Dula was struck by the morphologic similarity between Trichomonas vaginalis and Giardia lamblia. From this he concluded that these two organisms might respond in a similar manner to quinacrine, which had been used successfully in infestations with Giardia. He began using insufflations of quinacrine (30 grains [2 Gm.]) in finely powdered boric acid (1 ounce [30 Gm.]). The cervix and the vagina were first mopped dry; then the mixture was blown into the vaginal canal through a speculum and a cotton-tipped applicator was used to distribute the powder over the entire vaginal surface. Four treatments were given at two day intervals. All final smears have been reported negative in the 6 cases so treated, but some vaginitis has persisted for several days after the negative smear was obtained. In 1 case severe chemical vaginitis necessitated discontinuation of the treatment after the second application. The 6 cases of vaginitis due to Trichomonas had proved refractory to other forms of treatment, and the condition had persisted for periods as long as five years. The author believes that the routine use of quinacrine is justified and may prove of great value in vaginitis due to Trichomonas.

Philippine Medical Association Journal, Manila

24:217-280 (May) 1948

Cholecystectomy and Cholecystostomy in Gall-Bladder Disease: Study of Cases in North General Hospital. F. C. Guzman and F. B. Constantino.—p. 217.
Severe Gastro-Intestinal Upset as Manifestation of Hepatic Insufficiency. R. J. Navarro and J. A. Silva.—p. 221.
Cardiorrhaphy: Case Report with Successful Recovery. C. H. Abaya and R. De La Cuesta.—p. 229.
Lingual Thyroid. P. M. Recio and C. V. Yambrao.—p. 235.
Management of Five Cases of Aneurysm at North General Hospital. Angel Reyes and M. De Guzman.—p. 241.
Hearing Aids and Lip Reading for Rehabilitation of Hard of Hearing and Deafened Persons. Isabel Concepcion.—p. 245.

Plastic & Reconstructive Surgery, Baltimore

3:245-384 (May) 1948

*Preparation of Granulating Wounds for Grafting (A Method). J. T. Mills, J. B. Patterson and R. E. House.—p. 245.
Plastic Surgery in Facial Cancer. Claire L. Straith.—p. 262.
Eyelid Reconstruction in Blinded. S. M. Dupertuis.—p. 269.
Establishing Preserved Cartilage Bank. J. B. Brown and M. DeMere.—p. 283.
Surgical Management of Cutaneous Postdiphtheritic Ulcers. H. P. Royster.—p. 294.
Experimental and Clinical Studies of Reduced Temperatures in Injury and Repair in Man: III. Direct Effect of Cooling and Freezing on Various Elements of Human Skin. H. Baxter and M. A. Entin.—p. 303.
Study of Vitality of Tissue Transplants by Means of Radioactive Phosphorus: Preliminary Report. C. L. Kiehn, H. L. Friedell and W. J. MacIntyre.—p. 335.
Phagedenic Ulcer of Penis with Plastic Repair. G. B. O'Conner.—p. 340.
Dermoid Cysts of Nose. A. D. Davis and R. E. Berner.—p. 345.
Auriculo-Mastoid Tube Pedicle for Otoplasty. D. N. Steffanoff.—p. 352.
Right and Wrong in Rhinoplastic Operations. A. Rethi.—p. 361.
Operative Treatment of Retroauricular Opening Remaining After Radical Operation of Ear. A. Rethi.—p. 371.

Preparation of Granulating Wounds for Grafting.—Outlining the method by which large infected wounds are transformed into clean ones preparatory to grafting, Mills and his co-workers say that the usually malodorous ointment dressing is removed and a wound culture and a photograph are taken; then a complete blood count, urinalysis, blood Kahn test, determination of plasma protein, albumin and globulin and blood typing are ordered. All crusts and necrotic tissue are removed; the surrounding skin washed and shaved and a single layer of nonoverlapping 40 by 44 mesh plain sterile gauze is applied. This is followed by wet saline dressings. Evaporation and contamination are minimized by wrapping the part in sterile cellophane. The saline dressings are then changed every four hours down to the fine mesh gauze with sterile technic. The fine mesh gauze is usually left undisturbed for one week. During this interval the patient's temperature usually returns to normal, his appetite improves and the blood picture is brought back to near normal by blood transfusions. By the third hospital day the wound culture report is available, and, if this reveals pathogenic gram-positive cocci, penicillin may be added to the saline solution. If pathogenic gram-negative bacilli are reported, nitrofurazone solution may be used. Neither is recommended for routine use. On the seventh hospital day the fine mesh gauze is removed, all exuberant granulations cut down to a firm base and fresh mesh gauze reapplied and wet saline dressings resumed. By the tenth hospital day the granulating bed is usually ready for skin grafting. The authors stress the advantages of the fine mesh gauze treatment, pointing out that it allows the drainage of exudate into the overlying wet dressings which can be changed frequently and relatively painlessly. Removing the granulations prior to the day of skin grafting results in a cleaner wound, a more receptive bed and minimizes bleeding beneath the graft. Changing the fine mesh gauze two

or three days prior to grafting likewise minimizes oozing from the granulating wound when the gauze is removed the day the grafts are placed. After skin grafting fine mesh gauze allows the spread of epithelium with a minimum of disturbance.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

67:405-572 (April) 1948. **Partial Index**

In Vivo Observations on Distensibility of Femoral Venous System. R. S. Alexander.—p. 410.
*Circulating Antibodies in Vitamin Deficiency States: II. Thiamin and Biotin Deficiencies. B. B. Carter and A. E. Axelrod.—p. 416.
Subtenolin. Antibiotic from Bacillus subtilis. I. Bacteriologic Properties. H. N. Hirschhorn, M. A. Bucca and J. D. Thayer.—p. 429.
Results of Heterophile Antibody Agglutination and Kahn Tests in Patients with Viral Hepatitis. W. P. Havens Jr., J. M. Gambescia and Marjorie Knowlton.—p. 437.
Effect of Sodium Bicarbonate and Ammonium Chloride on Ascorbic Acid Metabolism of Adults. Betty E. Hawthorne and Clara A. Storvick.—p. 447.
*Cultivation of Rickettsia prowazeki in Dead Chick Embryos. Esther Rabinowitz, M. Aschner and N. Grossowicz.—p. 469.
Inhibition of Multiplication of Influenza Virus by Tannic Acid. R. H. Green.—p. 483.
Relationship Between the pH of Duodenal Content and Pancreatic Secretion. I. J. Pincus, J. E. Thomas, D. Hausman and P. O. Lachman.—p. 497.
Effect of Tween 80 on Certain Strains of C. diphtheriae. Martha K. Ward.—p. 527.
Bacillomycin: Antibiotic from Bacillus subtilis Active Against Pathogenic Fungi. M. Landy, G. H. Warren, S. B. Rosenman and L. G. Colio.—p. 539.
*Comparison of Nutritive Value of Egg Proteins and Their Amino Acid Content. W. C. Hess, E. H. Kramke, J. C. Fritz and H. W. Howard.—p. 552.

Antibodies in Vitamin Deficiency States.—Carter and Axelrod studied hemagglutinin production in response to inoculation with human erythrocytes in thiamin-deficient and biotin-deficient rats. A moderate impairment of antibody response was observed in both deficiencies.

Cultivation of Rickettsia in Dead Chick Embryos.—Rabinowitz and her co-workers found that chick embryos which were killed by chilling on the third day of development and were thereafter maintained at 37 C. for sixteen days still contained living cells. Rickettsia prowazeki multiplied abundantly in dead chick embryos which contained surviving cells. Since the growth period for rickettsia in dead embryos may easily be extended to sixteen days, or double the time customary in work with living embryos, even minute inoculums have a chance to multiply significantly. Inoculums too small to yield a positive smear after the usual seven days' incubation in the living embryos yielded smears containing numerous rickettsia after fourteen days' incubation in the dead embryos.

Nutritive Value of Egg Proteins.—Hess and his co-workers prepared whole egg, whole white and yolk proteins and analyzed them for nitrogen, sulfur, cystine, cysteine, methionine, phenylalanine, tryptophane, threonine, histidine, lysine and arginine. The same proteins were used in feeding experiments with young rats to determine their protein efficiency values. In addition three commercial egg proteins were tested similarly. The authors found the protein efficiency ratio of the whole white protein to be higher than that of either the whole egg or the yolk proteins. The protein efficiency ratio of the commercial whole white protein was almost as high as that of the laboratory prepared sample. The protein efficiency ratio of commercial whole egg protein was markedly lower than that of the laboratory prepared sample. The amino acid content of all the whole egg proteins was similar with the exception of the cystine content of the commercial samples, which was lower than that of the laboratory samples.

Psychiatric Quarterly, Utica, N. Y.

22:1-174 (Jan.) 1948

Psychosomatic Aspects of Korsakoff Syndrome. G. M. Davidson.—p. 1.
Song of the Sirens. G. Roheim.—p. 18.
Critique of Intravenous Barbiturate Usage in Psychiatric Practice. W. E. Burnett.—p. 45.
Biologic Purpose of the Dream. M. Brody.—p. 65.
Myth of a New National Disease. E. Bergler.—p. 66.
Psychotherapy in Veterans Administration Mental Hygiene Clinic. N. Blackman.—p. 89.
Analysis of Presumptively Telepathic Dream. J. Eisenbud.—p. 103.
Use of Bulgarian Belladonna Root in Treatment of Huntington's Chorea. M. Lazar.—p. 136.
Clinical Investigation of Simple Schizophrenia. O. Kant.—p. 141.

Rhode Island Medical Journal, Providence

31:291-348 (May) 1948

Blood and Plasma in Surgical Emergencies. F. A. Simeone.—p. 291.
Fractures of Shaft of Tibia: Types and Treatment (Bone Grafts and Non-Union). R. T. Henry.—p. 299.
Subacute Bacterial Endocarditis: Report of Case Treated Successfully with Penicillin. J. Greenstein.—p. 302.

31:349-412 (June) 1948

Extra-Mural and Intra-Mural Practice—Then and Now. S. A. Levine.—p. 363.
Medical Leadership. A. R. Ruggles.—p. 369.
Profound Prerenal Azotemia Resulting from Pyloric Stenosis: Report of Case with Postoperative Followup. A. T. Beck.—p. 372.

Tennessee State Medical Assn. Journal, Nashville

41:155-194 (May) 1948

The Tennessee State Medical Association and Postgraduate Medical Instruction. F. B. Bogart.—p. 155.
Newer Concepts of Management of Peptic Ulcer. H. Acuff.—p. 157.
Report on National Health Assembly. E. F. Stegen.—p. 164.

41:195-236 (June) 1948

Prognosis in Carcinoma of Uterine Cervix. A. N. Arneson.—p. 195.
Psychosomatic Disorders. C. W. Miller Jr.—p. 206.
*Use of Testosterone in Women with Recurrent Breast Cancer. M. B. Davis.—p. 213.

Testosterone for Women with Recurrent Breast Cancer.—Davis cites histories of 7 patients with recurrent cancer of the breast in whom he resorted to the use of testosterone propionate. He concluded that testosterone is of benefit in cases in which no further roentgen therapy can be used. None of these patients were apparently made worse by the use of this drug. It proved of value in the presence of pulmonary and particularly of skeletal metastasis. All of the women, with one exception, had a feeling of well-being and relief from pain which could not have been all psychic. It seems that, along with high voltage therapy, roentgen or surgical castration, testosterone is another weapon against one of women's most relentless enemies.

United States Naval Med. Bulletin, Washington, D. C.

48:355-502 (May-June) 1948. **Partial Index**

Medical Matériel Logistics in the United States Navy. M. K. Cureton.—p. 353.
Production of Anti-Rh Serums from Placenta Tissue of Sensitized Women. J. J. Engelfried and F. R. Henry.—p. 370.
Use of Pedicle Skin Grafts in Repair of Surface Defects of the Lower Extremities. W. Requarth.—p. 373.
Present-Day Concepts of Epidemiology. George E. Foley.—p. 386.
Dermatitis Due to Preparation and Administration of Penicillin Solution. W. C. Marsh and W. N. New.—p. 391.
Pterygium: A Simple Efficient Method of Treatment. H. G. Bullwinkel.—p. 395.
Streptothricosis. W. L. Schafer.—p. 399.
Prolonged Laboratory Observations on Clinical Cases and Carriers of "Shigella Flexneri III" Following an Epidemic. F. R. Philbrook, L. A. Barnes, W. J. McCann Jr. and R. R. Harrison.—p. 405.
Treatment of Fractures of Edentulous Mandibles. S. C. Liedman.—p. 415.
Sulfadiazine Anuria. C. F. Storey and J. A. Fowler.—p. 448.
*Rupture of Spleen in Infectious Mononucleosis. S. P. Hicks.—p. 460.

Rupture of Spleen in Mononucleosis.—Hicks reports the case of a sailor aged 18 years, in whom rupture of the spleen occurred in the presence of an unsuspected infectious mononucleosis. The patient recovered after splenectomy. The diagnosis was made from pathologic examination of the spleen, the presence of atypical lymphocytes in the blood and a sheep cell agglutination titer in the patient's serum of 1:112, which was unchanged by adsorption on guinea pig tissue (Davidsohn test). Rupture of spleen complicating infectious mononucleosis has recently been brought into prominence by a report of 7 cases from the Army Institute of Pathology. Four cases were fatal; 3 patients recovered after splenectomy. Of 3 cases reported in the literature previous to that time 2 were fatal. In 2 other previously reported cases recovery followed splenectomy. The possibility of a splenic rupture should be kept in mind in the management of infectious mononucleosis for two reasons: (1) It has carried a high mortality thus far, and (2) rupture appears to occur after trivial injury, even after palpation of the spleen.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

29:1-90 (Feb.) 1948

Experimental Production and Development of Diffuse Hepatic Fibrosis ("Portal Cirrhosis"). L. E. Glynn, H. P. Himsworth and O. Lindan.—p. 1.
Survival of Virus of Foot-and-Mouth Disease in Blood at 37 C. J. B. Brooksby.—p. 10.
*Enhancement of Bacterial Infections by Adrenaline. D. G. Evans, A. A. Miles and J. S. F. Niven.—p. 20.
Epizootic Behavior of Mouse-Pox (Infectious Ectromelia). F. Fenner.—p. 69.

Enhancement of Bacterial Infections by Epinephrine.—Evans and his associates point out that after the observation that an intramuscular injection of epinephrine in a man had apparently induced Clostridium welchii gas gangrene at the injection site, Cooper, in 1946, demonstrated a great decrease in the minimal lethal dose of Cl. welchii when washed baccilli were injected into the muscle of guinea pigs together with epinephrine. It was thus demonstrated that epinephrine enhances the infectivity of Cl. welchii. Evans and his associates investigated the nature of this enhancement in experimental infections with clostridia and with a number of pathogenic aerobic bacteria. They found that injection into the skin or thigh muscles of guinea pigs of 2 micrograms of epinephrine renders these tissues more susceptible to some microbial infections. The resulting enhancement of infection by strains of various pathogens tested was as follows: Clostridium septicum and Cl. welchii, 100,000 fold; Bacterium coli, Proteus vulgaris, Pseudomonas pyocyanea and Streptococcus pyogenes, 100 to 10,000 fold; Corynebacterium diphtheriae and Staphylococcus aureus, 10 to 100 fold; Bacterium subtilis, Brucella abortus, Clostridium novyi and Streptococcus pneumoniae, about 10 fold; Shigella flexneri, Shigella sonnei and Vibrio comma, 2 to 5 fold. Infections with strains of Clostridium histolyticum and Clostridium tetani were not enhanced. In the skin of the rabbit, Staph. aureas was enhanced 100 fold, vaccinia virus 10 fold and Haemophilus pertussis not at all. Epinephrine enhances chiefly infection, not intoxication. The temporary failure of mobilization of bactericides in epinephrine-treated tissue appears to be the chief factor in the enhancement of infections by epinephrine. There is some evidence of an early removal of bacteria from the injection site which is retarded by epinephrine, with a consequent increase in the severity of the local lesion. The removal of certain vital dyes is also retarded by epinephrine.

British Journal of Radiology, London

21:265-318 (June) 1948

Effect of Beta Rays on Cells Cultivated in Vitro. Ilse Lasnitski.—p. 265
Treatment of Cancer of Maxillary Antrum by Radium. Margaret C. Tod.—p. 270.
Theoretical Study of Results of Ionization Measurements in Water with X-Ray and Gamma-Ray Beams. L. F. Lamerton.—p. 276.
Plain Radiography of Skull in Diagnosis of Intracranial Tumours. D. Stenhouse.—p. 287.
Simple Apparatus for Making Rapid Serial Radiographs of Small Objects. G. E. H. Foxon.—p. 301.
Some Aspects of Radiology in War-Time Germany. G. E. Donovan.—p. 305.
Carcinoma of Duodenum. K. Mendl and C. H. Tanner.—p. 309.

British Medical Journal, London

1:1015-1060 (May 29) 1948

Pneumoconiosis of Coal-Miners. C. M. Fletcher.—p. 1015.
*Deficiency Scrotal Dermatitis in P.O.W.s in Far East. A. W. Frankland.—p. 1023.
*Streptomycin in Bubonic Plague. C. Haddad and A. Valero.—p. 1026.
Solitary Myeloma of Mandible. R. Spitzer and L. W. Price.—p. 1027.
Significance of Gram Test for Bacteria in Relation to Penicillin Bacteriostasis. Mariam George and K. M. Pandalai.—p. 1028.
Lugol's Solution in Failing Lactation. D. P. Nicholson.—p. 1029.

Deficiency Scrotal Dermatitis in Prisoners of War.—Frankland reviews observations on deficiency scrotal dermatitis seen in Allied prisoners of war in the Far East. From July 1 to Dec. 31, 1942, 1,371 persons were admitted to the skin ward at the main hospital for British personnel. Of these, 551 were primarily admitted for scrotal dermatitis. The first symptom noticed was an irritation of the scrotum, always worse at night. In its mildest form the scrotal dermatitis would last for only a few days and then would relapse and last days or weeks. Heavy work, heat and illness were the chief precipitating causes of the onset or a relapse. The author describes the symptoms of four different forms of the disease: the mild acute dry form, the severe chronic dry form, the chronic wet form and the ulcerated and edematous form. Associated vitamin deficiency diseases included oral lesions such as deficiency scrotal dermatitis, angular stomatitis, sore lips and sore tongue. Common cutaneous lesions were superficial desquamation on the nasolabial folds and on the skin adjacent to the pinna. Painful or burning feet and ocular manifestations such as granular cornea and retrobulbar neuritis were other manifestations of vitamin deficiency. It was noted that no cases of scrotal dermatitis occurred when the riboflavin content of the diet was maintained at a sufficiently high level. Riboflavin preparations seem to have a curative effect in cases of mild disease.

Streptomycin in Bubonic Plague.—Haddad and Valero say that in 1947 bubonic plague broke out in Haifa, Palestine. Sulfonamide drugs, especially sulfadiazine, were administered as a routine in all cases. When possible the initial dose was 2 Gm. given orally, followed by 1 Gm. every four hours during the acute stage. Later, smaller quantities were given until the bubo healed. Results were favorable on the whole, but the condition of 3 patients admitted when seriously ill deteriorated rapidly. They were given 200 or 300 mg. of streptomycin every three hours, and in 1 case it was continued for eleven days. The 3 patients recovered after this treatment, but although the effect of streptomycin on the general condition of the patients was remarkably good, the buboes appeared to be uninfluenced when treated late in the disease. This was true also of the sulfonamide drugs. In most cases incision and drainage were necessary to bring about resolution.

J. of Neurology, Neurosurgery & Psychiatry, London

11:73-142 (May) 1948

Primary Sensory Neuropathy with Muscular Changes Associated with Carcinoma. D. Denny-Brown.—p. 73.
*Fantom Limbs. W. R. Henderson and G. E. Smyth.—p. 88.
Pain Sensibility in Deep Somatic Structures. W. H. Feindel, G. Weddell and D. C. Sinclair.—p. 113.
Physiologic Mechanisms Underlying Electric Activity of Brain. Mary A. B. Brazier.—p. 118.
Role of Acetylcholine in Synaptic Transmission: Critical Review. D. Whitteridge.—p. 134.

Fantom Limbs.—Observations by Henderson and Smyth were made in prisoner of war hospitals in Germany. Amputation was nearly always a sequel to gunshot wounds and was performed usually within the first week or two after wounding. Observations on 300 cases revealed that a fantom limb is a natural and almost universal sequel to amputation. Three kinds of sensory phenomena may appear; (*a*) mild tingling, which forms the basic part of the fantom in nearly every case and probably arises in the cerebral cortex; (*b*) stronger pins and needles induced momentarily by touching a neuroma in the stump; (*c*) occasionally, superadded sensations which may be disagreeable and painful and probably have a psychogenic basis. Special attention has been given to what is termed the "natural fantom" by which is meant the basic sensory tingling, its motor counterpart, the impression of willed movements and other features. The spontaneous tingling appears in those parts (chiefly thumb, index and great toe) having the largest cortical representation, and the belief that it originates in the sensorimotor cortex is strengthened by its close functional relationship with the motor phenomena. The willed movements also are stereotyped; they are associated with observable contraction of the appropriate muscles in the stump, and their behavior reflects the fundamental importance of sensation in initiating and controlling voluntary movements. The fantom can be induced and intensified by reflex factors (for example, micturition) acting centrally. The behavior and evolution of the "natural fantom" is as if the related cerebral centers were for a time in a state of heightened activity, the later subsidence of which results in telescoping of the fantom and its eventual fading from consciousness, and perhaps also in the disappearance from subconscious levels of its neuronal patterns. Unusual superadded sensations sometimes appear which are peculiar to the patient and are believed to be psychogenically determined from the highest cerebral level. The authors stress that a fantom cannot

be considered as a single entity, for its manifestations may be derived from three levels in the nervous system (psychogenic, sensorimotor cortex and peripheral nerve). It is important before operating to determine to which of these the patient's complaints are most attributable. Peripheral operations on the stump, apart from neurectomy for a sensitive neuroma, usually have no effect on the fantom.

Lancet, London

1:817-852 (May 29) 1948

*Post-Hepatitis Cirrhosis. Sheila Sherlock.—p. 817.
*Bronchiectasis Simulating Chronic Bronchitis: Study of 46 Cases. J. D. H. Wearing.—p. 822.
Protein Katabolism in Uremia: Effects of Protein-Free Diet, Infections, and Blood-Transfusions. J. G. G. Borst.—p. 824.
Mercury in Urine of Children with Acrodynia. J. Warkany and D. M. Hubbard.—p. 829.
Photo-Electric Drop Recorder for Investigating Cardiovascular Effects of Drugs in Man. R. H. Goetz.—p. 830.
Unstable Semilunar Bone. H. Davies.—p. 831.

Posthepatitis Cirrhosis.—Sherlock says that although acute hepatitis is normally followed by complete recovery, she has observed 9 patients in whom hepatic cirrhosis could be related to a preceding acute hepatitis. In 6 the hepatitis was of the simple "infective" type; in 3 it was of the "serum" variety following arsenotherapy for syphilis. The 9 patients have been followed up to five years from the development of the cirrhosis. The results of serial aspiration liver biopsies and hepatic function tests have been correlated with the clinical course of the disease. In 3 patients the hepatic lesion was well compensated and produced no symptoms, and hepatic cell necrosis was not histologically demonstrated. In 2 patients hepatic cell necrosis and degeneration were prominent; there was slight jaundice; abnormalities were found in most of the hepatic function tests. One patient died of hepatic failure. In 4 patients hepatic fibrosis was prominent and the symptoms and signs were those of portal circulatory obstruction; biochemical changes were slight or absent. Two patients died of gastrointestinal bleeding. Although the 9 cases of posthepatitis necrosis were detected in liver biopsies on 120 patients with hepatitis, this does not reflect the true incidence of this complication, since the present group is partly selected.

Bronchiectasis Simulating Chronic Bronchitis.—Wearing says that in 46 of 214 patients with symptoms suggesting chronic bronchitis bronchography revealed bronchiectasis. In 26 of the 46 cases in which bronchiectasis was discovered there was a past history of pneumonia. Pleurisy had occurred alone in 2 cases. Treatment in a sanatorium had been received by 3 patients, but no tubercle bacilli were found. Productive cough and dyspnea were the presenting symptoms in all 46 cases. Secondary symptoms were pain in the chest, sweats, loss of weight and hemoptysis. The cough was intermittent, but except in the winter months it was not severe enough to cause disability. Diminished respiratory excursion was general. There were 8 cases with clubbing of fingers. The signs and symptoms in the 46 patients with bronchiectasis in no way differed from those in the 168 patients with chronic bronchitis. There were 31 cases of cylindrical, 3 of varicose and 12 of saccular bronchiectasis. The appearances of cylindrical bronchiectasis seen in the plain roentgenogram were not sufficiently characteristic to enable a firm diagnosis to be made. Bronchography is essential to confirm and show the extent of the bronchiectasis. The bronchi in unresolved pneumonia at first undergo reversible mechanical dilatation, which may later be rendered irreversible by secondary infection of the bronchial wall. A bronchus may remain dilated for several months and yet be capable of returning to its original diameter.

Medical Journal of Australia, Sydney

1:609-636 (May 15) 1948

Diagnosis of Gastric Disease: Should Radiology of Stomach Be Abandoned? V. J. Kinsella.—p. 609.
Mediastinal Emphysema. V. L. Collins.—p. 614.
Hyperplasia of Cardiac Muscle Fibres. T. E. Lowe and E. W. Bate.—p. 618.

1:637-664 (May 22) 1948

Goiter Studies: I. Incidence of Endemic Goiter in Three Areas in Australia. F. W. Clements.—p. 637.
Sinusitis and Short-Wave Therapy. W. Smith.—p. 640.
Investigation of Carbohydrate Metabolism in Normal Pregnancy. Sara Weiden.—p. 646.

Acta Paediatrica, Stockholm

35:1-188 (No. 1 and 2) 1948. **Partial Index**

Comparison Between Sedimentation Rates of Children in Day Nurseries and Children Cared for in Their Homes. E. Frissell.—p. 1.
Infantile Cortical Hyperostoses. W. van Zeben.—p. 10.
Primary Hemolytic Anemia in Infants. G. Klackenberg and S. Vendel.—p. 21.
Nosocomial Chickenpox: Some Observations and Attempts of Prophylaxis. P. Anchersen.—p. 72.
*Duration of Immunity After Vaccination with BCG. O. Walsz-Höckert.—p. 89.
Rheumatic Pneumonia. E. Van Wijk.—p. 108.
*Studies on Diphtheria: I. Decrease of Natural Antitoxic Immunity Against Diphtheria. B. Vahlquist.—p. 117.
Id.: II. Immunization Against Diphtheria in Newborn Babies and in Infants. B. Vahlquist, U. Murray and N. G. Persson.—p. 130.
Id.: III. Duration of Immunity Against Diphtheria Following Vaccination as Compared with that Following Clinical Disease and Carrier State. B. Vahlquist and G. Hackzell.—p. 149.

Duration of Immunity After Vaccination with BCG.—Walsz-Höckert gave tuberculin tests to 1,702 children who had been vaccinated with BCG from six months to eight years before. Half of those tested were less than 3 months old and three fourths less than 3 years of age when first vaccinated. The test reaction was judged as negative when a Mantoux test with 1 mg. did not produce a 10 by 10 mm. area of redness and infiltration within seventy-two hours. The tuberculin sensitivity had disappeared after two to three years in 10 per cent of the children and after five or six years in about 20 per cent. A tuberculous superinfection definitely reacts on the tuberculin sensitivity. In order to insure the protective effect of BCG, Wallgren had suggested that tuberculin tests be carried out at least at 3, 7, 10, 15 and 20 years of age. A tuberculin test every year or every other year provides greater certainty. Of the 1,702 children followed up in 6 primary tuberculosis developed. In 5 cases the disease had an extremely benign course. These 6 comprise 5.5 per cent of the 108 children who were definitely exposed to virulent tuberculous infection. No deaths occurred.

Decrease in Immunity Against Diphtheria.—Vahlquist says that during the years preceeding World War II the frequency of diphtheria was low in many countries of Europe. Among the exceptions were England and Germany. In Germany it was not only high but steadily increasing. During the war there was over the entire continent a general increase in diphtheria. The heavily infected German troops, often carrying diphtheria, probably played an important role in transmitting the disease to the populations of occupied countries. Other factors have been of decisive importance. The results of Schick tests and of antitoxin determinations in Sweden and other European countries clearly demonstrate that the situation in regard to natural immunity against diphtheria is most unsatisfactory. In Sweden the number of Schick-negative persons among nonimmunized adults does not exceed 10 per cent. As a consequence the newborn only infrequently demonstrate that passive immunity which was formerly assumed to be the rule. In spite of the unfavorable immunologic situation an epidemic of diphtheria in Sweden during the war rapidly subsided. Large scale immunization contributed to this outcome.

Anales de la Facultad de Medicina, Lima

29:311-368 (Oct.-Dec.) 1946. **Partial Index**

*Action of Cocaine Against Fatigue and Habituation to Coca in Peru. F. Cabieses Molina.—p. 316.

Coca Chewing in Peru.—The author reviews the literature on coca chewing in Peru, a problem that concerns more than 15,000,000 Andeans. He reports his own observations on the physiology of the Andeans. Much speculation on the toxicity of coca has been made. The conception of the toxicity of coca is erroneous, since it is based on the observations on the toxicity of cocaine when administered by parenteral route to persons living at sea level. In judging the toxicity of coca for the Andeans several factors must be considered: The Andeans constitute a climaticophysiologic variety of the human race. They live at altitudes between 12,000 and 17,000 feet (3,658 to 5,182 meters). They depend on half as much oxygen in the atmosphere as is available in the atmosphere of persons living at sea

level. They are not great eaters, but are strong and athletic. Their sympathetic nervous system is constantly at a high tonus. The p_H of their blood is near the limit of alkalinity. Their reactions to drugs stimulating the nervous system are quite different from those of peoples at sea level. There is a direct relationship between altitude and the percentage of coca chewers. The higher the settlement of the mountaineer population the greater the percentage of coca chewers. Coca chewers consume a daily dose of coca which varies between 42 and 91 mg., a dose which is atoxic when administered by mouth. Chewing lasts for several hours; consequently the alkaloid enters the blood in extremely small doses. Cocaine is destroyed in the liver before passing to the blood. The alkalinity of the blood is another factor in destroying the alkaloid. Although definite conclusions cannot be reached, the following facts are obvious: Coca has a favorable effect on fatigue and on metabolism of respiration. The Andeans have a racial resistance to the drug, which is both harmless and necessary for them at the great altitudes of the Andes. There is no habituation to coca chewing. The custom is abandoned when the Andeans work at sea levels. Coca chewing does not cause any degeneration of the race.

Klinische Wochenschrift, Heidelberg

26:161-192 (March 15) 1948. **Partial Index**

Results of Supradiaphragmatic Resection of Sympathetic and of Splanchnic Resection According to Peet in Hypertension. R. Zenker and H. Lohr.—p. 170.
*Transition of Chronic Epidemic Hepatitis to Hemolytic Jaundice. K. Voit. —p. 176.
Pathologic Aspects of Nutritional Disturbances in Nurslings. W. Müller. —p. 177.
Action of Urethane (Ethyl Carbonate) on Blood and Erythropoietic Tissues: Experiments on Animals. W. Tischendorf and E. Fritze. —p. 179.

Transition of Chronic Epidemic Hepatitis to Hemolytic Jaundice.—Voit points out that Kalk in a recent report on various conditions resulting from the chronic form of epidemic hepatitis suggested that this hepatic disorder may terminate in a hemolytic jaundice. On the basis of his own observations and those of his associate, Gerstenberg, Voit is inclined to accept Kalk's suggestion. The investigation of blood changes in patients who had had hepatitis some time before but who had occasional recurrences of jaundice revealed that persisting urobilinuria and indirect bilirubinemia were always accompanied by a reduction in the resistance of erythrocytes. The hemoglobin metabolism was investigated in 4 cases, in which clinical signs of impaired hepatic function were no longer present, but in which enlargement of the spleen, decrease in the resistance of erythrocytes and indirect bilirubin reaction suggested transition into hemolytic jaundice. The results obtained indicate that transition of chronic epidemic hepatitis into hemolytic jaundice is highly probable.

Medicina, Buenos Aires

8:1-90 (Feb.) 1948. **Partial Index**

*Course and Treatment of Ventricular Paroxysmal Tachycardia. F. C. Arrillaga and L. de Soldati.—p. 1.
Relation Between Insufflated Air in Pleural Chamber and Diminution of Pulmonary Volume. A. E. Bence, A. Lanari and E. Rodriguez. —p. 16.
*Thiouracil and Acute Atrophy of Liver. E. Trucco, J. Argonz and M. Gambin.—p. 55.

Ventrical Paroxysmal Tachycardia.—Arrillaga and Soldati report clinical and electrocardiographic observations on 6 instances of paroxysmal ventricular tachycardia in 4 patients. The paroxysms were controlled three times in one patient and once in another patient. In both cases the so-called post-tachycardic electrocardiographic syndrome, consisting of depression of the S-T segment, negative T wave and, less frequently, enlargement of the Q-T interval, was observed. The post-tachycardic syndrome assumed different characteristics, depending on the direction of the electric axis during the paroxysm, that is, on the location of the focus originating the ectopic stimuli. The syndrome was reversible in a short time in one patient. It was related neither to the duration of tachycardia nor to the previous existence of organic cardiopathy. In one patient the syndrome persisted for more than two months, probably due to ischemia of variable intensity in the myocardium. Practically all drugs known to be of value in the condition were resorted to in the treatment of these patients. Quinidine injected intravenously was the only effective drug. One patient who did not react to quinidine in large doses reacted favorably to intravenous injection of 0.50 Gm. of quinidine when the injection was given one hour and a half after an intravenous injection of 4 cat units of digitalis. A large percentage of patients with paroxysmal ventricular tachycardia do not have organic heart disease before the attack, but the disease may develop afterward. The absence of heart disease before the attack and the duration of the attack do not necessarily modify the grave prognosis of paroxysmal ventricular tachycardia.

Thiouracil and Acute Atrophy of the Liver.—The authors report a woman with exophthalmic goiter who was given thiouracil as preoperative treatment. The drug was administered in doses of 0.60 Gm. for seventeen days and in doses of 0.20 Gm. for eight days, a total of 11.80 Gm. being administered in twenty-five days. The surgical intervention did not present any difficulty, and the postoperative stage was passed without complications. Eight days after the operation the patient exhibited mental agitation and confusion. She died on the thirteenth day after the operation. Necropsy revealed acute yellow atrophy of the liver.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:1129-1200 (April 17) 1948. **Partial Index**

Venereal Diseases Among the Armed Forces. J. van der Veen.—p. 1134.
Eryemthema of the Ninth Day. K. E. H. P. Neering.—p. 1145.
*Cowpox. W. Kortmann.—p. 1158.
*Epidemic of Cowpox After Vaccination. R. J. Hamburger.—p. 1161.

Cowpox.—Kortmann presents the case of a man, aged 50, who presented symptoms which were finally identified as caused by cowpox infection. He had had contact with cows which had cowpox. A sulfonamide preparation was given in order to counteract the secondary infection. Recovery was uneventful. After this case the author observed a number of other cases of infection with cowpox in milkers. These patients had either not been vaccinated at all or they had been vaccinated more than twenty years before.

Epidemic of Cowpox After Vaccination.—Hamburger reports a family in which 5 persons became ill in a comparatively short time. The oldest son in this family had been vaccinated while in military service. He had felt rather ill and was given a furlough when he had not yet completely recovered. He helped with the milking, and within a week all 27 cows contracted cowpox. Lymph obtained from these cows was found to contain vaccine virus. The persons who came in contact with the animals, including 2 milkers who came from outside the family group, exhibited symptoms indicative of cowpox. The disorder took a favorable course in all the patients.

92:1201-1288 (April 24) 1948

Regarding the "Firm Pancreas." P. H. Hartz.—p. 1217.
Morphologic Aspects of Renal Lesions Caused by Sulfonamides. G. Bras and Lie Kian Joe.—p. 1222.
*Ovarian Abscess. T. J. van Sante.—p. 1227.

Ovarian Abscess.—Van Sante investigated all patients with pathologic processes of the uterine adnexa that had been treated at his hospital between 1930 and 1946. The total of 944 cases of adnexitis included 120 cases of a tuberculous nature. Of the 824 nontuberculous infections, 467 were treated conservatively; of 357 patients who were operated on, 115 were found who had an ovarian abscess, and 2 additional ovarian abscesses were found at necropsy in women who had not been operated on. Thus ovarian abscesses accounted for 14.2 per cent (117 of 824) of the nontuberculous infections of the adnexa. The etiology of the ovarian abscess differs somewhat from that of pyosalpinx. Streptococci, staphylococci or colon bacilli are generally found. The abscess frequently develops by continuation, and a recently ruptured follicle often plays an important part in this process. Infection by the hematogenous or lymphogenous route is much less frequent. As regards treatment, the pyo-ovarium differs from the pyosalpinx in that it is less responsive to conservative treatment and generally requires surgical intervention.

Nordisk Medicin, Stockholm

38:1111-1162 (June 4) 1948

Hormone Treatment in Climacteric Disturbances. F. Bøe.—p. 1111.
Citrin and Ascorbic Acid Administration in Chronic Polyarthritis or in Toxemia of Pregnancy. B. Ekman.—p. 1112.
Erosion of Neck of Uterus and Carcinoma. W. Munck.—p. 1115.
Frequency of Uterine Malformations and Their Relation to Fertility and Delivery. S. Palmberg-Nyberg.—p. 1117.
Preoperative Estrogenic Treatment in Complete Retrovaginal Rupture. J. Løvset.—p. 1121.
Circulatory Disturbances in Supine Position in Pregnancy. J. Walde. —p. 1122.
*Adenoma Tubulare Testiculare Ovarii. H. Anker.—p. 1124.
Shoulder Delivery in Head Presentation. J. Løvset.—p. 1127.
Mixed Tumor of Mammary Gland. B. Anda.—p. 1128.

Adenoma Tubulare Testiculare Ovarii.—Anker says that adenoma tubulare testiculare ovarii is the least common of the ovarian tumors called arrhenoblastomas, with more or less hormonal action ascribed to interstitial cells of the same appearance and the same biologic action as the Leydig cells in the testes. His patient was a primipara aged 34, with oligomenorrhea and, in the last nine months, amenorrhea, slight virilization in the form of growth of hair of masculine type and vague pain on the right side of the abdomen. A solid tumor of the size of a hen's egg was removed from the right ovary and found to be a typical adenoma tubulare testiculare. The menses returned four weeks after extirpation of the tumor. The abnormal growth of hair disappeared. After about a year the patient gave birth to a healthy child. This is believed to be the tenth case reported in the literature.

38:1163-1210 (June 11) 1948. **Partial Index**

Heart Catheterization. Review. L. Werkö and H. Lagerlöf.—p. 1163.
Coronary Thrombosis and Its Treatment. A. Aubert.—p. 1167.
Cholesterin in Diseases of Heart. G. Biörck and H. Karni.—p. 1175.
*Serum Proteins in Diseases of Heart. G. Biörck, S. Hedlung, J. Karnell and H. Karni.—p. 1179.
Afferent Impulses from Heart. Y. Zotterman.—p. 1182.

Serum Proteins in Diseases of Heart.—Biörck and his associates studied serum proteins in 147 cases of cardiac disease and found that several factors play a part in protein metabolism and determination of the serum protein. The presence of hepatic injury seems to be important. Low serum protein values, low total protein and low protein-globulin ratio characterize heart disorders with hepatic injury. When compensation occurs the serum protein is often increased independently of whether special measures are taken to increase the serum protein. Simultaneously with the process of compensation a transitory increase in sedimentation reaction often appears; the cause is unknown. Although the effect of the protein balance on special protein administration in uncompensated cases cannot always be registered by the serum protein value, it seems to be advantageous. The protein administered, however, should as far as possible be free from sodium ions.

Progrès Médical, Paris

76:273-304 (June 10) 1948

*Research on Pathologic Physiology of Amputation Stumps. Study on Spatial Modifications of Fantom Limbs. A. Jung.—p. 275.
Amenorrhea and Ascensus Uteri. H. Vignes.—p. 281.

Spatial Modifications of Fantom Limbs.—Jung studied 50 amputees, 27 of whom had a precise notion of the length of their fantom limbs. On the average, the length of the fantom limb is as much more considerable as the level of the amputation is nearer to the root of the limb. The fantom becomes shorter as a rule when a weight is attached to the arm or to the forearm bent at a right angle. The fantom becomes shorter or longer when the weight has been attached to the extensor side. At rest the fantom may have the tendency to adopt the length of the prosthesis. At work or if weight has been attached, the fantom becomes shorter. Procaine hydrochloride infiltration of the skin or of the muscles of the stump shortens the fantom. Infiltration of the stellate ganglion on the side of the amputation lengthens the fantom, while infiltration of the stellate ganglion on the opposite side shortens the fantom. In persons with amputations on both sides, infiltration of the stellate ganglion lengthens the fantom of the same side and shortens that of the opposite side. It is suggested that the infiltration of the stellate ganglion produces vasodilation in the extremity of the same side and vasoconstriction of the centers of the opposite extremity because of the crossing of the cerebrospinal fasciculi. The peripheral vasodilation therefore seems to have an opposite effect to that of the cerebral centers. Infiltration of the stellate ganglion in persons whose upper extremity has been amputated may be followed by a sensation of relaxation which has a calming effect on the patient. In persons with amputation on one side this improvement is obtained independently of the side of the infiltration of the stellate ganglion, while the effect is bilateral in patients with amputations on both sides. The sensation of peripheral heat occurs only on the same side as that of the infiltration of the stellate ganglion. In some instances the "lengthening" of the fantom obtained by the infiltration of the stellate ganglion may give the patient the impression of working with his fantom hand. The application of weight to the lower extremities shortened the fantom limb in some instances and lengthened it in others. The infiltration of the skin, as a rule, shortened the fantom. The infiltration of the stellate ganglion of the opposite side shortened the fantom limb. Lumbar infiltration on the side of the amputation and infiltration of the stellate ganglion of the opposite side improved considerably the walking of some of the amputees with artificial limbs and gave them the impression of walking with their own feet.

Revista Clinica de São Paulo

23:1-26 (Jan.-Feb.) 1948

*Laurence-Moon-Bardet-Biedl Syndrome: Case. A. Bruna de Einis and D. Pupo Nogueria.—p. 1.

Laurence-Moon-Bardet-Biedl Syndrome.—The authors report a typical case of Laurence-Biedl syndrome in a girl 17 years old. Consanguinity of the parents and ancestors and heredity were ruled out. Administration of thyroid in daily doses of 0.1 mg. for ten consecutive days followed by ten days without therapy for several months normalized the metabolism but had no influence on the syndrome. Roentgen examination of the head showed a normal sella turcica of increased size. Administration of thyroid for some time resulted in an abundant elimination of gonadotropin in the urine. These facts show that the syndrome is not of hypophysial origin. The authors believe that the syndrome and the congenital malformations associated with it are due to defects of the germ plasm.

Strasbourg Médical

108:127-132 (April 25) 1948

*Effect of Infiltration of Pneumogastric Nerves on Pains from Gastroduodenal Ulcers. J. Warter, A. Fitzenkam, A. Lévy and J. Rouillard. —p. 127.
Tomographic Study of Aorta: Its Importance for Differential Diagnosis of Aortic Dilatation from Mediastinal Neoplasm. R. Even and J. Lecoeur.—p. 128.
Tomographic Exploration of Area of Hilus in Adults. R. Jeanneret. —p. 130.

Injection of Pneumogastric Nerves for Gastroduodenal Ulcer Pain.—Warter and his co-workers treated 18 patients with pain from gastroduodenal ulceration by injecting 10 cc. of a 1 per cent procaine hydrochloride solution at the level of the vascular-nervous bundle of the neck and of the sixth cervical vertebra within the sternocleidomastoid muscle. One hundred and eighteen infiltrations were made. In the majority of the patients infiltration on the left side was sufficient to control the pain. Bilateral infiltration was required only in the most refractory cases. Relief of pain was definite in all patients. In 9 it was immediate and in 4 it occurred within several minutes. In 3 patients there was only little improvement. The infiltration was ineffective in 1 case of a gastric ulcer of the posterior wall, and one single injection, made at the left side, was ineffective in 1 patient with duodenal ulcer. In patients who were benefited by the treatment the relief from pain lasted for six to eight hours. Ten of the patients had a definite simultaneous sensation of heat at the level of the epigastrium. In 2 patients, the abdominal reflexes were diminished before the infiltration, but were restored to normal immediately after the infiltration. Paralysis of the larynx did not occur in any case, but nearly all patients presented mild tachycardia. The main effect of the infiltrations is on the sensory fibers of the pneumogastric nerves.

Book Notices

The Acute Bacterial Diseases: Their Diagnosis and Treatment. By Harry F. Dowling, M.D., F.A.C.P., Clinical Professor of Medicine, George Washington University, Washington, D. C. With the collaboration of Lewis K. Sweet, M.D., Chief Medical Officer in Pediatrics and Infectious Diseases, Gallinger Municipal Hospital, Washington, D. C., and Harold L. Hirsh, M.D., Assistant Professor of Medicine, Georgetown University, Washington, D. C. Cloth. Price, $6.50. Pp. 465, with 55 illustrations. W. B. Saunders Co., 218 W. Washington Sq., Philadelphia 5, 1948.

This monograph emphasizes the diagnosis and treatment of bacterial infections and the necessity of making a diagnosis on an etiologic basis. An attempt has been made to present the latest specific antibacterial agents used in the treatment of various infections. But, as with other similar projects, by the time publication takes place, rapid advances in therapy have occurred, so that statements applicable six months or a year before are already outdated.

Part I is concerned with the general phases in the diagnosis and treatment of infectious disease. The value of the illustration on "the administration of specific antiserum" on page 33 is diminished because of the fine print. This also applies to the illustrations on pages 63, 85 and 97. The principles of sulfonamide therapy are reviewed. Sulfonamide compounds are given as the drugs of first choice for plague, but recent developments show that streptomycin occupies first place. A survey of therapy with penicillin and streptomycin is then presented. Key references to pertinent literature are cited throughout. Part II considers the diseases caused by cocci. The discussion of pneumococcic infections reflects Dr. Dowling's considerable knowledge of the subject. The reviewer does not agree with his dose schedule of penicillin for pneumococcic pneumonia as given on page 117. He would prefer to use crystalline penicillin in an aqueous solution in doses of 50,000 to 100,000 units every eight hours rather than 15,000 units every three hours, and he does not employ oil and wax preparations of penicillin for an infection as recommended by Dr. Dowling throughout the monograph. Under streptococcic diseases, many will disagree with the recommendation that active immunization against scarlet fever is limited to children. Many do not believe that children should be immunized. The recommendation that subacute bacterial endocarditis should be treated with 300,000 units of penicillin during each twenty-four hour period by continuous intravenous or intramuscular infusion is at variance with practice in most clinics. An unnecessary amount of space has been devoted to gonococcic infections. Part III is a consideration of diseases caused by bacilli and includes a survey of typhoid, Salmonella infections, Shigella infections, brucellosis and acute tuberculosis. The chapter on pertussis by Dr. Sweet is particularly informative. Other bacillary diseases discussed include Hemophilus influenzae infection and tularemia. Part IV presents bacterial diseases caused primarily by exotoxins. This includes an excellent section on diphtheria.

This monograph is recommended to practitioners and students. With the exceptions noted, the illustrations, some in color, are appropriate and clearcut. An outstanding feature is the references to the medical literature appended to each chapter. The volume has a good index. It probably is impossible for any author of a monograph to keep abreast of the rapid advances in antibacterial therapy. However, no serious mistakes will be made if the recommendations in this book are followed.

The Healthy Hunzas. By J. I. Rodale. Cloth. Price, $2.75. Pp. 263, with illustrations. Rodale Press, Emmaus, Pennsylvania, 1948.

Popular interest in food-health relationships as influenced by the soil in which the food was grown began in this country in 1921, when the great English physician Sir Robert McCarrison delivered the Sixth Mellon Lecture at the University of Pittsburgh, on "Faulty Food in Relation to Gastrointestinal Disorders." The salient points of this lecture centered around McCarrison's observation on the marvelous health and robustness of the Hunzas, who dwell in a valley on the northwestern border of India, where Afghanistan, China and Russia converge. These observations were given wider circulation on the part played by the quality of the soil in food-health relationships by Sir Albert Howard, an orthodox agricultural scientist who became convinced from his work in India that chemical fertilizers in the main only "blew up" the plant at the expense of its health and of its nutritive values; that what we have been getting since the introduction of chemical fertilizers around 1860 has been volume and not value, and that the only kind of fertilization that was safe and health-producing was the composts.

The author, who is also the author of "Pay Dirt" and editor of the magazine *Organic Gardening*, has collected material in shape of numerous books and articles dealing with Northwest India. In addition, he has exchanged many letters with the present ruler, the Mir of Hunza, who is well informed about what is said of his people in the outside world.

This book, however, was written to interest the public in a theory of agriculture as it relates to the health of plants and animals who live on them. As such it is one of a dozen which have appeared in the last fifteen years designed to convert the reader to "organics." This and many of the others have been dressed up with the trappings of a cult according to ancient formula so well known to the medical historian: "One cause, one remedy, one master, one set of facts set forth in the gospel." This book, then, becomes a commentary on the "gospel."

Stripped of its mysticism, there is much that is of vital importance in this book to the health of our people. As the population of the world increases 20,000,000 souls each year and more, and the land becomes increasingly depleted, the problem facing the world is not so much how to cure disease, or even to prevent it, as it is to keep the people in robust health. Read with a judicial eye and with a mind trained to detect fallacies of cultism, this entertaining book can supply physicians with many important facts and suggestions.

Diagnostiske og terapeutiske problemer ved ferris undulans. Af Poul Mogens Jersild. [Diagnostic and Therapeutic Problems in Undulant Fever.] Denne afhandling er af det lægevidenskabelige fakultet antaget til offentligt at forsvares for den medicinske doktorgrad. With an English Summary. Paper. Pp. 156, with 3 illustrations. Ejnar Munksgaard, Nørregade 6, København, K, 1942.

This volume is an excellent summary of the problem of the diagnosis of human brucellosis by an authority in Denmark. Jersild considers first diagnostic tests for brucellosis. He points out that complement-fixing antibodies in the serum may make a delayed appearance, compared with agglutinins for Brucella, and they may persist longer in the blood than agglutinins. He concludes that the agglutination test is a highly reliable diagnostic test for active disease. The complement fixation reaction is more likely to be positive in patients that have had the disease in the past. In discussing the cutaneous test, he believes that the reaction is specific, and expresses either an active or past infection. Ten per cent of the adult population in a medical ward in Copenhagen had positive reactions, whereas less than 1 per cent of children gave positive reactions. According to Jersild the cutaneous test is not a reliable means for diagnosing active brucellosis. Brucella abortus is the only species of Brucella which has been isolated from patients in Denmark. He has never encountered a positive blood culture in a patient with negative seroreactions, which is at variance with the experience of some persons in this country. The author has been interested in the opsonins for Brucella found in normal persons and those with proved brucellosis. He believes that normal opsonins can be distinguished from immune opsonins by the use of anticomplementary serum obtained from patients with hyperglobulinemia; i. e., multiple myeloma. In discussing chronic brucellosis, he states that he has not been able to correlate brucellosis with Hodgkin's disease. In summary, the diagnosis of acute or chronic brucellosis is unequivocally established by isolation of Brucella from the patient. The next most reliable procedure is the agglutination reaction. The opsonocytophagic test and the cutaneous test are most reliable for epidemiologic studies, and of little aid in the diagnosis of the sporadic case. The reviewer is in agreement with his interpretation of procedures used in the diagnosis of human brucellosis. Unfortunately, too often the diagnosis is based on a vague set of symptoms and a positive reaction to an intradermal test. If blood cultures remain sterile and repeated agglutination tests are negative, one must seriously doubt the presence of active disease.

Jersild concludes his monograph with a discussion of the use of sulfanilamide in the treatment of undulant fever. The drug appears to shorten the duration of the illness, but one cannot be too enthusiastic about the results.

He has appended a partial survey of the literature, especially references to publications which have appeared in the foreign literature. The brief monograph represents a sound discussion of the diagnosis of brucellosis.

Contribuição ao estudo da alergia infratuberculínica na infância. Por Homero Braga. Tese apresentada para o concurso de professor catedrático de clinica pediátrica médica e higiene infantil, da Faculdade de medicina do Paraná. Paper. Pp. 140, with 6 illustrations. Empreza gráfica Paranaense Ltda., Curitiba, Brazil, 1944.

This is a report of a study among contact children in Brazil concerning the tuberculin reaction. The study is based on the findings of Willis and Saenz, who concluded that in the guinea pig the tuberculin reaction based on the persistence of the allergic state could be remobilized by the inoculation of tubercle bacilli—a condition termed by Willis as "latent" allergy. Saye and Assis verified this with BCG following primary vaccination in children and the anallergic state reactivated by revaccination. Assis in children and Rosenberg in adults noted the effect of tuberculin injections in reactivation. This was called "alergia infra-tuberculinica" by Assis (infratuberculin allergy). Braga studied 134 children and found that 107 (79.85 per cent) had positive reaction to tuberculin, while 27 (20.14 per cent) had negative. The 27 with negative reaction were studied as having infratuberculin allergy by administration of 0.1 mg. dead BCG intradermally; and, of these, 22 proved to possess infratuberculin allergy, while in 5 the allergy could not be verified. The author classified these 5 as 3 doubtful and 2 negative, however. The author suggests that a state of residual allergy (or anallergy) can be activated or reinforced by inoculation with a complete antigen. He stresses the quantitative values or grades of the state of allergy, which he suggests as weak, medium or marked as determined by the features of the reaction. The constitutional state of the children appeared to influence the intensity of nonspecific reactions. There was no absolute correlation between the intensity of the allergy and the roentgenologic picture. In some of the children with infratuberculin allergy correlation could be made with the increased resistance to the infection and its evolution.

Psychiatry in a Troubled World: Yesterday's War and Today's Challenge. By William C. Menninger, M.D., General Secretary, The Menninger Foundation, Topeka, Kansas. Cloth. Price, $6. Pp. 636. The Macmillan Company, 60 Fifth Ave., New York 11, 1948.

The author of this book is the president of the American Psychiatric Association, the American Psychoanalytic Association and the Central Neuropsychiatric Association, in addition to his duties as chairman of the Group for the Advancement of Psychiatry and general secretary of the Menninger Foundation. He has accepted these honors modestly but not lightly. He is conscientious and fearless in his administrative duties as well as in his attitudes and beliefs.

The author's background of training and experience, particularly as Chief Consultant in Neuropsychiatry to the Surgeon General of the U. S. Army, has fitted him for the presentation of this comprehensive book. The reader is given a first hand picture of the actual situation and condition of psychiatry in this country at the beginning of World War II, and the obstacles that were necessary to overcome to reach a maximum of efficiency with inadequate personnel and inadequate organization. The author has outlined many of the lessons which psychiatry learned the hard way during the war and how to apply that learning to the postwar world.

Dr. Menninger points out that the war emphasized that psychiatry, to reach its full usefulness, must take three important forward steps: Research activities must be increased; the great need for more and better trained psychiatrists must be filled, and psychiatry must be presented to the public in such a way that there will be genuine, intelligent understanding.

This book is thorough, well written and easily understandable. Whether you are a psychiatrist, physician, psychologist or layman, you can profit by reading this book, as well as some of the excellent reference material.

An Evaluation of Non-Directive Psychotherapy by Means of the Rorschach and Other Indices. By George A. Muench, Assistant Professor of Psychology, University of Louisville, Louisville, Kentucky. With a foreword by Carl R. Rogers, Professor of Psychology, University of Chicago, Chicago. Applied Psychology Monographs of the American Psychological Association No. 13. Paper. Price, $2. Pp. 163. Published for the American Psychological Association by Stanford University Press, Stanford University, California; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1947.

This monograph presents another attempt at shortening psychotherapy by the method called nondirective psychotherapy. Although the author warns against evaluation of the results in any form of psychotherapy, he goes ahead to evaluate his process even without allowing a lapse of time after the termination of the therapy. It is well known that most of the psychoneuroses show some improvement after a certain length of ventilation (confession) with a nonjudgmental therapist. This is usually referred to as abreaction. It has also been established that some patients improve temporarily as a way of exhibiting gratitude to their therapist. In reading the case histories in the monograph one reads almost nothing about what has been said by the therapist, and the impression is left that the process consists almost entirely of self analysis in the presence of an objective listener. This monograph may prove interesting to any one desiring to examine all the different approaches to brief psychotherapy, but it is of doubtful value to the student or the well informed psychotherapist.

Klinisch-praktische Bewertung des Elektrokardiogrammbefundes. Von Privatdozent Dr. Oskar v. Zimmermann-Meinzingen, Vorstand der I. Medizinischen Abteilung der Krankenanstalt Rudolfstiftung, Wien III. Band I, Wiener Beiträge zur inneren Medizin, herausgegeben von Hanns Fleischhacker. Boards. Pp. 227, with 136 illustrations. Wilhelm Maudrich,, Spitalgasse 1B, Vienna IX/2; Grune & Stratton, Inc., 381 4th Ave., New York 16, 1948.

In publishing this monograph the author had as his purpose the brief presentation of the meaning of the electrocardiogram in clinical practice in simple language suitable for the medical student and the general practitioner. In the opinion of the reviewer, the author fails in these purposes because the presentation is not simple, and he assumes that the reader for whom it is intended has a greater knowledge of electrocardiography than he presumably has.

The first section, which deals with the role of the electrocardiogram in diagnosis, the clinical circumstances indicating the need of recording the electrocardiogram, what is to be expected clinically from the electrocardiogram and the circumstances in which the electrocardiogram alone is diagnostic, falls short of the mark.

The second section deals with particular arrhythmias and electrocardiographic contours. The part on arrhythmias is fairly adequate, but the part dealing with the contour of the electrocardiogram is not acceptable by modern standards.

The illustrations in the book are poor and the author is apparently poorly informed of recent developments outside of his provincial limits. For example, on page 12 he has the impression that the Mayo Clinic is in Boston!

So many books have appeared recently on electrocardiography that the time has come when no others should be published unless they serve to fill a gap. This monograph fails to do so.

An Introduction to Physical Methods of Treatment in Psychiatry. By William Sargant, M.A., M.B., M.R.C.P., Physician, Maudsley Hospital, London, and Eliot Slater, M.A., M.D., F.R.C.P., Physician in Psychological Medicine, National Hospital, London. With a chapter on Treatment of the Epilepsies by Denis Hill, M.B., M.R.C.P., D.P.M., Physician in Psychological Medicine, King's College Hospital, London. Second edition. Cloth. Price, $3.50. Pp. 215. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

This is a welcome second edition. The book contains an addition in that it has a chapter on the treatment of epilepsy. There are eleven chapters consisting of two chapters on treatment with insulin in schizophrenia and modified insulin therapy in various syndromes. There is a chapter on convulsive therapy. These three chapters are detailed adequately with all indications and contraindications. Through all this, one notices a welcome conservative attitude. The chapter on epilepsy is fairly well detailed. Other chapters consist of chemical sedation and stimulation; the technic of continued sleep treatment; use of drugs in psychotherapy; diet; vitamins and endocrines. The

chapter on prefrontal leukotomy is in adequate detail, and again there is the welcome conservative attitude which is lacking in many publications.

The treatment of general paralysis includes malaria and penicillin therapy. However, nothing is said of the use of typhoid vaccine and other physical agents. The last chapter is one on the relationship of psychology to somatic treatment. There is a short bibliography at the end of the book which is adequate to orient a person if he wishes to do more intensive study. Although this book contains only 200 pages, it is a valuable addition and can be recommended to psychiatrists and all those students interested in the physical aspects of psychiatric therapy.

Vitamin and Mineral Content of Certain Foods as Affected by Home Preparation. By Elizabeth M. Hewston, Elsie H. Dawson, Lucy M. Alexander, and Elsa Orent-Keiles. Bureau of Human Nutrition and Home Economics, Agricultural Research Administration. United States Department of Agriculture, Miscellaneous Publication No. 628. Paper. Price, 30 cents. Pp. 76. Supt. of Doc., Government Printing Office, Washington 25, D. C., 1948.

Little accurate information is available about the retention of vitamins and minerals in the home preparation of foods. Food composition tables usually give figures for fresh, raw food and do not take into account the losses occurring during transportation, storage and household preparation. All persons interested in nutrition should welcome this informative publication which gives the results of a comprehensive investigation based on common methods in the home preparation of foods.

Twenty common foods were purchased on the open market. These were prepared in several different ways and the vitamin and mineral contents were determined. This bulletin gives the technics employed and the results of the various cooking methods. There is a comprehensive bibliography. It should merit the attention of all students of food and nutrition.

Osteophthisis Pelvis et Femorum: Zugleich ein Beitrag Zur Frage der spontanen Rückbildung maligner Tumoren. Von Dr. Gottfried Hartmann, Assistent des pathol. Anat. Institutes der Universität Wien, Wien. Wiener Beiträge zur Pathologie und pathologischen Anatomie, Band I. Boards. Price, $5. Pp. 183, with 19 illustrations. Wilhelm Maudrich, Spitalgasse 1B, Wien IX/2; Distributors in U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1947.

The author presents a case of extraordinarily extensive absorption of the skeleton involving complete disappearance of the pelvis, upper two thirds of the left femur and the head and neck of the right femur. The process began in the region of the left hip in a normal 16 year old girl, progressed rapidly for three years, and then gradually slowed down until it ceased about ten or twelve years after the onset. The patient had little pain or local symptoms, remained in relatively good health, getting about on crutches and even giving birth to 2 normal babies by cesarean section. She died at the age of 49 of a carcinoma of the stomach which had given local symptoms for only about four months.

At autopsy, a scirrhous carcinoma of the stomach was found with local peritoneal and retroperitoneal spread. Metastases were found in the resorbed areas of the pelvis and left femur and in the fourth and fifth lumbar vertebrae.

Among the possible causes for the local bone resorption, the author considers: (1) congenital malformation, (2) bone atrophy, (3) aseptic necrosis, (4) a new type of process, (5) parasites, (6) Hand-Schüller-Christian disease, (7) primary bone tumor (including cavernous hemangioma) and (8) metastatic bone tumor. He concludes that the latter best fits his case; namely, that a carcinoma of the stomach with osteolytic metastases occurred during adolescence of the patient with no local symptoms, that the osteolytic process finally ceased and the carcinoma lay "dormant" for over twenty years, becoming active just before the death of the patient with local symptoms from the primary tumor.

This is an interesting case, and it is regrettable that the author's conclusions must rest on speculation rather than sound evidence. If biopsy had been performed at the time the osteolytic process was active, the interpretation would be much more convincing. It is much more probable that the primary cause was not carcinoma and that metastases, if present, were late secondary complications.

A Rorschach Study on the Psychological Characteristics of Alcoholics. By Charlotte Buhler, Ph.D., Consulting Psychologist, Los Angeles County General Hospital, Los Angeles, and D. Welty Lefever, Ph.D., Professor of Education, University of Southern California, Los Angeles. Memoirs of the Section of Studies on Alcohol, Laboratory of Applied Physiology, Yale University, No. 6. Paper. Price, 75 cents. Pp. 64, with 14 illustrations. Distributed by Quarterly Journal of Studies on Alcohol, Box 2162 Yale Station, New Haven, Conn. Published for the Section of Studies on Alcohol by Hillhouse Press, 432 Temple St., New Haven, Conn., 1948.

This monograph of 64 pages reports investigations by means of the Rorschach test in 100 alcoholic patients, 77 men and 23 women. The report limits itself to a description of a Rorschach sign list, which is published in full; to the application of this list in alcoholism; and to a description of a method of statistical analysis developed by the authors for studying the Rorschach test signs. The authors report findings in alcoholic addicts as compared with other clinical groups, and their conclusion as to the alcoholic addict's personality.

The monograph does not include a sample of the original Rorschach test records. A report on a Rorschach test investigation, without a sample of original test records, amounts to asking a reviewer to accept interpretations on faith, without the raw material that was interpreted. The authors do promise (page 13) that "detailed reports will be made elsewhere," since the present study is part of a larger one. Perhaps when these other reports are published, some Rorschach test records will be included. Until then the report is incomplete.

Atlas of Dental and Oral Pathology. Prepared at the Army Institute of Pathology from Material in The Registry of Dental and Oral Pathology of The American Dental Association. By Joseph L. Bernier, D.D.S., M.S., Lt. Col. Dental Corps U. S. Army, Chief of the Dental and Oral Pathology Section, Army Institute of Pathology, and J. E. Ash, M.D., Scientific Director of the American Registry of Pathology. Fourth edition of previous editions of James B. Mann, D.D.S., M.D., and Henry M. Goldman, D.D.S. Fabrikoid. Price, $7. Pp. 236, with 484 illustrations. American Registry of Pathology, National Research Council, Army Institute of Pathology, Washington 25, D. C., 1948.

Every member of the profession interested in this special field of pathology should own this atlas and refer to it frequently. The excellent physical format of writing and simplicity in style indicate that the authors are very familiar with their subject. They describe their subject in simple language. The description of the embryology and histology of the hard structures is by anatomic layers as the tooth is seen. The numerous photomicrographs are exceptionally clear.

The classification of odontogenic tumors is on an embryologic basis, whereas odontogenic cysts are discussed on a clinical basis. Soft tissue cysts are inaccurately included in this latter group. For the student, it might be well to classify these tumors uniformly.

The clinical descriptions of diseases involving the soft tissues of the mouth are not as accurate or as complete as the descriptions of the pathology of dental structure per se. Some of the clinical photographs would have greater teaching value if they were in colors.

This is probably the first book of this type to include a description of the effects of an atom bomb explosion on the oral tissues. This atlas is highly recommended.

Dr. Kirkbride and His Mental Hospital. By Earl D. Bond, M.D. Cloth. Price, $3.50. Pp. 163, with 7 illustrations. J. B. Lippincott Co., 227-231 S. Sixth St., Philadelphia 5, 1947.

Dr. Bond's book is not only an interesting, living profile of Dr. Thomas S. Kirkbride, the outstanding psychiatrist of his time, but is a notable addition to a rarely cultivated field, the history of psychiatry. Too often in this age we are so much intrigued with the important additions to a scientific discipline that we forget the labors and spirit of those pioneers who from few materials and with crude tools laid solid foundations without which the scientific superstructure could never have been erected. Such a pioneer and builder was Dr. Kirkbride. He not only realized that mental patients were human beings, people rather than psychoses, but constantly in his relation with patients he translated his beliefs and feelings into professional and personal behavior. Not routinely, but particularly and thoughtfully the medical, occupational and diversional needs of the patients under his care were served. In a sense he was the prophet of psychosomatics, for he understood so well that

the so-called insane were unified and total in their functioning. Under Dr. Kirkbride, psychiatry achieved a high summit of humanitarianism. He bequeathed this rich legacy of care, understanding and treatment to the Pennsylvania Hospital, where it has been served conscientiously and faithfully by his successors, including Dr. Bond. Dr. Bond has brought to the writing of this book not only the accurate accumulation of valuable historical data, but the artistry of interesting and sympathetic description.

Handbook of Applied Pharmacology. Edited by Frederick Schroeder, M.D., F.A.C.P., and Arthur W. Grace, M.D., F.A.C.P., Formulary Committee of the Medical Board of The Long Island College Hospital, Brooklyn, N. Y. Fabrikoid. Price, $2. Pp. 133. The Long Island College Hospital, 340 Henry St., Brooklyn, N. Y., 1948.

This book represents essentially a compilation of the various therapeutic agents obtainable in the Long Island College Hospital. It has been prepared with the following objectives in view: "1. To acquaint the members of the Hospital Staff with the preparations carried in the Hospital Pharmacy for use in the In-and Out-Patient Departments; 2. To outline the dose, route of administration, size and nature of package of each material presented; 3. To indicate those conditions for which the preparations are employed." This purpose the authors have admirably fulfilled. This handbook should be of use to the house staff of the Long Island College Hospital as well as to the staffs of similar institutions, although in other institutions some of the therapeutic agents mentioned may not be obtainable.

Kinesiology Handbook: A Study Guide and Laboratory Manual. By M. Gladys Scott. Loose-Leaf. Paper. Price, $2. Pp. 148, with 25 illustrations. F. S. Crofts & Co., 101 Fifth Ave., New York 3, 1947.

As pointed out by Dr. C. H. McCloy in the introduction to this handbook, "the concepts of mechanics have usually been taught with no relationship to the movement of man.", The author has overcome this difficulty by assembling special experiments and problems which do apply to man. This text is "designed as a workbook and study aid for students of kinesiology." It includes twenty-one lessons on various phases of kinesiology, and in each lesson there is an introduction, a list of references, a list of equipment required for the lesson, a description of the project and, finally, a list of questions elucidating the facts learned from the lesson.

Such subjects as motion in relation to structure of joints, action of the muscles of the various parts of the body, muscular tonus, muscular fatigue, leverage, inertia, relaxation, locomotor skills, development of muscular strength and of muscular tonus and measurement of strength of groups of muscles are discussed. Professors of anatomy in our medical schools might well advocate greater consideration of this subject in teaching of medical students, because modern physicians should be well grounded in kinesiology and functional anatomy.

This handbook is well organized and well planned and should prove a useful teaching aid, not only for students of physical education, physical therapy and occupational therapy but also for medical students.

Essentials of Fevers. By Gerald E. Breen, M.D., B.Ch., D.P.H., Tempy. Divisional Medical Officer, Hospitals Division, the London County Council, London. Second edition. Cloth. Price, $4.50. Pp. 351, with 40 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

Perhaps the chief criticism pertaining to this book is its title. If the term "contagious diseases" or "acute infectious diseases" had been used, it would undoubtedly have been considered in this country much more descriptive of the volume's contents. Beginning with "General Features of Infection" there are thirteen chapters, the final one relating to miscellaneous matters which include "Infectious Diseases and the Law." Most of the intervening titles represent primarily the various common contagious diseases, and a great deal of sound advice is presented in respect to diagnosis, treatment and related facts. It is apparent that the one who has written this book is not merely thoroughly familiar with his subject but that his observations are based on a broad personal experience. The plates in color are the accomplishments of the author as an artist. This is a practical book, concisely written, and printed with clear type on good paper. It should be of exceptional value to the medical student and appreciated in particular by the pediatrician.

Introduction to Human Physiology. By William D. Zoethout, Ph.D. Cloth. Price, $4. Pp. 424, with 142 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1948.

This author has, in most respects, merely expanded the material presented in the accompanying laboratory guide, which is the outgrowth of many years of experience in teaching physiology to dental students. In that respect, it is on a soundly conservative basis. No one can take issue with the factual material presented. The textual material, however, is presented in a too elementary manner. Illustrations are good, many obviously prepared from original material. After each chapter there is a list of questions bearing on the chapter contents. The book should be excellent for high school students or college freshmen. Dental students should be able to digest a more adult diet.

The laboratory guide, in contrast, could be used even for medical students. Directions and illustrations are apt, concise and well composed and the material well selected, except, perhaps, some of the experiments on chemical reactions, which are rather elementary. Also experiments on human subjects are not numerous. This is always a serious defect in a physiologic laboratory.

Las arritmias en clínica (diagnóstico, pronóstico y tratamiento). Por el Doctor Antonio Battro, profesor adjunto de clínica médica de la Facultad de ciencias médicas de Buenos Aires. Paper. Pp. 511, with 299 illustrations. El Ateneo, Florida 340, Buenos Aires, 1948.

This work by the late Dr. Battro is an elaborately illustrated monograph concerning cardiac arrhythmias. It brings the subject up to date and includes work which the author and his collaborators have recently carried out, including observation on intracavity electrocardiography in man. It is divided into two parts. The first deals with the background material pertaining to arrhythmias, including the anatomy and physiology of the heart, the methods for graphic registration of the cardiac rhythm, as well as a more extensive section on the theory of the electrocardiogram and the characteristics of the normal electrocardiogram in the limb and chest leads. This latter section also discusses the so-called unipolar leads and the esophageal electrocardiogram. The second section considers the clinical aspects of the various arrhythmias. There is an extensive bibliography covering the important references in various languages dealing with this subject. The format is clear and the illustrations are beautifully reproduced and help to document the manuscript. This volume should be of interest to the cardiologist.

Diseases of the Heart and Circulation. By Albert A. Fitzgerald Peel, M.A., D.M., F.R.F.P.S., Professor of Medicine, Anderson College of Medicine, Glasgow. Oxford Medical Publications. Cloth. Price, $9.75. Pp. 398, with 61 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Square, London, E. C. 4, 1947.

The author presents the conventional, modern concepts of heart and vascular disease. To accomplish this objective in 400 pages, he has had to limit many subjects to brief paragraphs, but there are few omissions. The roentgen illustrations are excellent and the electrocardiographic reproductions are fair to good. The bibliography is limited. The American Heart Association Classification of Heart Disease has been adopted by the author. In his discussion of the treatment of subacute bacterial endocarditis, it becomes clear that the use of penicillin in the British Isles is more limited than in the United States, possibly due to limited supplies.

Recent Advances in Endocrinology. By A. T. Cameron, C.M.G., M.A., D.Sc., Professor of Biochemistry, Faculty of Medicine, University of Manitoba, Winnipeg, Canada. Sixth edition. Fabrikoid. Price, $6. Pp. 443, with 74 illustrations. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1947.

Considering its concentrated form, this book gives an excellent presentation of the essentials of endocrinology for the reader who does not want a mass of detail and yet wishes competent scientific treatment of the subject. Recent advances in our knowledge are stressed. The book brings up to date the experimental work pertaining to function of the endocrine glands and also deals with the latest discoveries and methods of treatment of their diseases.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

THEOBROMINE IN ANGINA

To the Editor:—Please discuss the present use of theobromine preparations, especially of "theocalcin," in cardiac therapy. What is the physiologic action with reference to the arterial system in general and the coronary arteries in particular? What other drugs are of use in anginal conditions due to a narrowing of the coronary arteries?

E. W. Hunter, M.D., Greenwood, Miss.

ANSWER.—In animal experiments, theobromine and theophylline possess a dilator effect on the smooth muscle of the arteries, thus lowering slightly the normal blood pressure. The coronary arteries dilate, and a greater flow through these arteries is obtained in both anesthetized and nonanesthetized dogs (Essex and others: *Amer. Heart J.* **19**:554, 1940). Furthermore, xanthine derivatives increase slightly the contractility of the heart muscle without influencing its rate of contraction. The effect on contraction is more strikingly obtained in the weakened or damaged heart of the dog (Flaum, E., and Rössler, R.: *Klin. Wchnschr.* **12**:1489, 1933). Treatment with aminophylline has been claimed to decrease the size of infarcts following surgical occlusion of a branch of the coronary arteries in dogs (Fowler, W. M.; Hurevitz, H. M., and Smith, F. M.: *Arch. Int. Med.* **56**:1242, 1935). More recently Mokotoff and Katz (*Am. Heart J.* **30**:215, 1945) found that aminophylline (and, to a greater extent, papaverine) significantly reduced the size of experimental infarcts in dogs and also increased the size and number of collateral channels in the infarcted heart. Similar experiments by Gold and others (*Am. Heart J.* **14**:284, 1937) on cats, however, failed to demonstrate any influence of aminophylline on the infarcted area and on the survival time of the animals.

In the management of the patient suffering from the anginal syndrome the use of xanthine derivatives introduced by Askanazy in 1895 has become a matter of controversy, since Evans and Hoyle (*Quart. J. Med.* **2**:311, 1933) found that the treatment with these preparations did not prevent the occurrence of anginal pain to a greater extent than the administration of placebos. The results of their studies based on the statements of the patients were confirmed by some investigators in this country, but contradicted by others who obtained a salutary effect from these drugs as compared to placebos. On the other hand, Brown and Riseman (J. A. M. A. **109**: 256, 1937), using an exercise tolerance test as an objective index, reported improvements in the performance of these tests in 80 per cent of their patients under treatment with theobromine with sodium acetate or theophylline with sodium acetate. A 50 per cent or greater improvement accompanied by decrease in number and diminution in severity of the anginal attacks was obtained in about 25 per cent of their patients. The effect of xanthine derivatives in cardiac patients was further studied by Williams and associates (*Am. Heart J.* **22**:252, 1941) by measuring the deviations of the RS-T waves induced by anoxia. They reported a marked diminution of the sum of the RS-T deviations when the patients were maintained on theobromine or theophylline.

Theobromine with sodium acetate, theobromine with calcium salicylate, aminophylline, theophylline with sodium acetate and theobromine with calcium salicylate are reported to be superior to other xanthine derivatives. Tolerance to all preparations is limited by the degree of gastric distress caused by larger doses, and also, more frequently with theophylline, by insomnia. Maximum tolerated doses usually do not exceed 0.5 Gm. of theobromine with sodium acetate four times daily (equivalent to 1.2 Gm. of theobromine per day) or 0.2 Gm. of aminophylline four times daily (equivalent to 0.6 Gm. of theophylline). No evidence is available to show that theobromine with calcium salicylate ("theocalcin" N. N. R.) is more effective than theobromine with sodium acetate. It is somewhat less soluble than the latter and is supposed to cause less gastric distress.

Admittedly, the evidence for the efficacy of xanthine derivatives is still inconclusive. The lack of other, more effective drug therapy seems largely responsible for their continued use in the treatment of the anginal syndrome. According to Elek and Katz (J. A. M. A. **120**:434, 1942) papaverine hydrochloride given orally in doses of 0.1 Gm. four times daily promises to be more effective than aminophylline.

CAVERNOUS SINUS THROMBOSIS

To the Editor:—Discuss the use of heparin and "dicumarol" in treatment of cavernous or sigmoid sinus thrombosis under the following heads: (a) reasons for using these medications; (b) when should one use heparin with or without Pitkin's menstruum? (c) When should one use "dicumarol?" (d) What laboratory tests are necessary for control of each drug? (e) When should one discontinue use of these drugs? (f) What is the mechanism of action of heparin and "dicumarol?"

James R. Bishop, M.D., Salisbury, Md.

ANSWER.—While the total experience available to date is relatively limited, the use of heparin and "dicumarol" either together or separately in the treatment of cavernous or sigmoid sinus thrombosis seems justified. This is established on the basis of the large experience in this country and in Sweden which has resulted in diminishing both the death and complication rate in patients with thrombophlebitis. Substantiation of the favorable effect on thromboembolic diseases has now been established by the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction. While a few patients have been so treated, further work needs to be done in the specific field of cavernous sigmoid sinus thrombosis, but the evidence appears strong that favorable results may be expected. If the patient were acutely ill, heparin would be indicated during the first three or four days until the effect of "dicumarol" given on the beginning of the first day would be established.

The use of Pitkin's menstruum with heparin would be an optional alternative to the combined use of heparin and "dicumarol." It should be pointed out, however, that the present preparations are frequently painful and control of the action of heparin is sometimes not well regulated. "Dicumarol" may be utilized in any patient with cavernous or sigmoid sinus thrombosis unless there are contraindications such as hemorrhagic tendencies. For the control of heparin the Lee-White clotting time test is still the most satisfactory, although it is relatively a crude test. The clotting time should be kept on an average of three times the normal clotting time if continuous infusions are used. If the Swedish or intermittent technic is used, the clotting time should return to approximately 10 to 15 minutes at the end of a three and one-half hour interval after an infection of 50 or 75 mg. of heparin. The Quick test or the Link-Shapiro modification should be used for the determination of the prothrombin time for the control of "dicumarol." If desired, the times may be translated in percentage of activity, provided that this is done by the logarithmic curve method which has been described frequently.

In general, it is wise to continue the use of these drugs for twenty-one to twenty-eight days after the last thromboembolic complication. The action of heparin is probably a neutralization of the action of thromboplastin which is an essential factor in the initial phase of the clotting process. The action of "dicumarol" is believed to be based on the prevention of the production of prothrombin by the liver. This information is taken from publications by E. V. Allen and Barker of the Mayo Clinic; E. Jorpes and his co-workers in Sweden; Wright and his co-workers, and K. P. Link and his co-workers.

TRAUMA IN OBSTETRICS

To the Editor:—What role does trauma play in premature separation of the placenta? I have been unable to get any specific, clearcut opinion on this subject from the literature.

M.D., Connecticut.

ANSWER.—Undoubtedly the role of trauma in the development of premature separation of the placenta has been overemphasized. The older literature particularly stressed that trauma was an important factor in abruptio placentae. Rigby in 1776 considered trauma to be the most important cause of this condition. De Lee and Greenhill (Principles and Practice of Obstetrics, ed. 9, Philadelphia, W. B. Saunders Company, 1947) quote Rigby as saying "separation of the placenta must be owing to some accidental circumstance, to violence done to the uterus by blows or falls, to some peculiar laxity of the uterine vessels from badness of habit, or fever, or to some influence of the passions of the mind suddenly excited, such as fear, anger, etc." The term "accidental hemorrhage" is still used, especially by British authors, to designate the premature separation of the normally implanted placenta. In Holmes's collection of 200 cases of abruptio placentae from the literature (*Am. J. Obst.* **44**:753 [Dec.] 1901) accident was given as the cause in 67 or 33.5 per cent, but in Davis and McGee's series of 164 cases observed at the Chicago Lying-In Hospital, only 3, or 1.8 per cent, were associated with trauma (*Surg., Gynec. & Obst.* **53**:768 [Dec.] 1931).

Whereas external trauma and violence are infrequent causes of premature separation of the placenta, internal trauma is not

rarely the cause. During labor several accidents may cause detachment of the placenta, as sudden emptying of a large polyhydramnios, the loosening of the placenta which sometimes follows the delivery of the first twin, manual manipulation during version, use of bags, bougies, gauze and, finally, traction exerted on the placenta by a cord that is actually or relatively too short.

KAHN "VERIFICATION TEST"

To the Editor:—**Could you explain the Kahn verification test and offer suggestions for the following patient? A white male farmer 54 years old was seen in September 1946 complaining of severe steady aching pain in both feet only at night. He had been treated for nervous indigestion for years but had not had other serious illnesses. Physical examination did not reveal any abnormality except for pupils that were slightly irregular, were sluggish to light but reacted to accommodation, a systolic aortic murmur, only suggestive Romberg sign and absent patellar reflex. Pain was not felt on either side when the achilles tendons were pinched. The fundi prostate and urine were normal; hemoglobin was 100 per cent; the hematocrit reading 45 per cent. He complained of some difficulty in seeing in the dark which has cleared some on antisyphilitic therapy. The serologic reactions were as follows: Aug. 31, 1946, Kahn positive; September 16, Kahn positive (20 Kahn units, Springfield Laboratory); September 16, Kahn positive (20 Kahn units, Chicago State Laboratory); November 22, positive (4 units); Feb. 6, 1947, positive (10 units); May 31, positive (4 units); August 28, positive (4 units); October 20, positive (2 units); October 21, positive (3 units, Chicago State Laboratory); Jan. 5, 1948, positive (2 units) and May 12, positive (3 units, Chicago State Laboratory); reaction to Kahn verification test, general biologic (false positive). He has had alternating courses of bismuth and dichlorophenarsine hydrochloride until the present. Is further treatment indicated and did the patient have syphilis in the first place? Is a spinal fluid examination necessary for the diagnosis?**

Clifford W. Atherton, M.D., Fairview, Ill.

ANSWER.—The question was referred to an eminent syphilologist who says that the Kahn "verification test" is hard to explain since Dr. Kahn changes the rules frequently. As one procedure fails to work, he adopts another. Now he is probably using a combination of four different technics based on a "differential temperature phenomenon," a "triple quantitative technic," a "salt dispersibility technic" and "method B." Since none of these alone or in combination produced the desired result, it is possible that new maneuvers have been added which have not yet been widely published. It is beyond the scope of this reply to explain the reasoning behind the Kahn "verification" test (or tests). The technical details are complicated and an understanding of them is not necessary to interpretation of the test by the average practitioner.

There are three Kahn tests in common use in Kahn's laboratory, and two of these have been widely adopted by other serologic laboratories. These are as follows:

1. The standard Kahn test. This is a flocculation test which differs only in minor technical details from other flocculation tests such as those devised by Mazzini, Hinton, Eagle, and others, and in the hands of a competent technician it gives reliable results, whether on a quantitative or a qualitative basis.

2. The Kahn "presumptive" test. The naming of this test would indicate that its results permitted the physician to "presume" that a patient did or did not have syphilis. This is an erroneous assumption. The "presumptive" test requires the use of a supersensitive antigen, so sensitive that in the hands of the average technician false positive results are secured in a substantial proportion of nonsyphilitic persons.

3. The Kahn "verification" test. The naming of this test would indicate that it verified something; namely, that if a "syphilitic type" reaction is reported, the patient has syphilis; whereas if a "general biologic type of reaction" is reported, the patient does not have syphilis, but does have a biologic false positive serologic reaction. Actually the Kahn "verification" test does not verify anything. It has been shown by investigators other than Kahn that the results of this test, whether "syphilitic type" or "general biologic type," are closely related to the serologic titer of the serum in question. Serums positive in low quantitative titer only, whether from patients with syphilis or from those with nonsyphilitic diseases causing biologic false positive reactions, usually give the "biologic type of reaction" with this Kahn test. Conversely, serums of high quantitative titer, regardless of their source, usually give reactions of the "syphilitic type."

The Kahn "verification" test is one of a number of procedures, the latest of which is the Neurath euglobulin-inhibitor test, designed to differentiate positive serologic reactions due to syphilis from biologic false positive reactions caused by other conditions or occurring in some normal persons. No one of these procedures can be regarded as wholly satisfactory or as furnishing absolute laboratory differentiation of this difficult diagnostic problem.

4. The results of the Kahn "verification test" of the patient described in this inquiry may be totally disregarded. A patient with irregular pupils, reacting sluggishly to light but normally on accommodation, absent patellar reflexes, loss of deep pain sense in the achilles tendons and difficulty in dark adaptation almost certainly has tabes dorsalis, regardless of the outcome of any blood serologic test, whether Kahn standard, presumptive, or "verification," or any other technic. In addition, it is at least suggested that the patient also has cardiovascular syphilis.

The patient in question should at once have a detailed examination of his spinal fluid, including cell count, quantitative protein estimation, quantitatively titered complement fixation (not flocculation) test and colloidal test. In addition, he should certainly have neuropsychiatric and cardiologic or competent syphilologic consultation.

If he has tabes dorsalis with or without cardiovascular syphilis, treatment with bismuth and arsenic compounds should be abandoned in favor of penicillin. It may be desirable to combine penicillin with fever therapy by means of induced tertian malaria. Whether this is the case depends on the patient's general physical condition, his cardiac and neuropsychiatric status and the results of his spinal fluid examination.

5. The spinal fluid examination is necessary for diagnosis in every patient with syphilis, and the physician who attempts to treat syphilis without examination of the spinal fluid is proceeding in the dark.

6. It is suggested also that the inquirer consult modern texts on syphilis and its treatment, such as Stokes, Beerman and Ingraham, "Modern Clinical Syphilology (third edition, Philadelphia, W. B. Saunders Company, 1944), or Moore, J. E., "The Modern Treatment of Syphilis" (second edition, Springfield, Ill., Charles C Thomas, Publisher, 1943) and "Penicillin in Syphilis" (Springfield, Ill., Charles C Thomas, Publisher, 1946).

CHRONIC HEPATITIS

To the Editor:—**A young man, age 31, served with UNNRA in Germany. In November 1946 while there he became ill and was given a diagnosis of acute hepatitis. One year later he complained of tiredness, lethargy, white stools, gaseous distention of the bowel and diarrhea. The condition had been present for ten days and was progressive. He stated that he had had several episodes similar to the present attack in the year preceding. An icteric index of his blood was 19.5. I made a diagnosis of chronic hepatitis with acute exacerbation and put him on "meonine" (DL-gamma-methylthiol-alpha-aminobutyric acid) twelve tablets daily, and a high protein diet. He recovered and the icteric index was 7.1 ten days later. His icteric index has run from 7.1 to 11.8 ever since. There have been episodes of white stools and lethargy at intervals of several weeks, in spite of "meonine" therapy, B complex and high protein diet. Please comment on diagnosis, therapy and prognosis.**

Albert Irving Clark, M.D., Shreveport, La.

ANSWER.—The diagnosis of chronic hepatitis during an acute exacerbation is probable but hardly proved by the data presented. The commonest symptoms of such a condition are dull aching pain in the right upper quadrant and marked intolerance to fatty foods; the commonest physical sign is hepatomegaly, and the most definite laboratory findings are (1) elevation of the indirect reaction for serum bilirubin, (2) retention of sulfobromophthalein sodium, (3) increased thymol turbidity and (4) increases in the value for serum globulin and in the sedimentation rate of erythrocytes. Since the only laboratory finding mentioned in the case report is an increased icterus index, further studies of hepatic function should be undertaken before the diagnosis is considered as established. Constitutional hepatic dysfunction with hyperbilirubinemia comes to mind as a possible condition to be excluded, not to mention one of the hemolytic varieties of icterus.

Active hepatitis has been demonstrated by needle biopsy of the liver months after an acute infectious hepatitis has subsided; in some cases the only abnormalities noted have been increases in the level of urinary urobilinogen and the urinary content of coproporphyrin. The exact pathologic and physiologic residues of the acute disease are not as yet fully catalogued, and only long observation of those who have had the disease and presumably have recovered and of patients such as the one described here will establish the diagnosis of chronic hepatitis on a secure footing.

The prognosis for chronic hepatitis is uncertain; in some cases the disease seems to progress, and either chronic atrophy of the liver or what has been called "cholangiolitic cirrhosis" develops. Some patients seem to recover, while others have persistent complaints, similar to those of the patient under discussion, for indefinite periods, without ever presenting much in the way of objective evidence of disease.

Treatment of chronic hepatitis is unsatisfactory; restriction of activities, an adequate diet with a high protein content,

lipotropic agents such as choline and methionine, liver extract by the intravenous route and high level vitamin therapy have all been recommended, but it is not clear that much improvement has taken place with any or all of these therapeutic agents.

SCLERODERMA

To the Editor:—In a woman patient affected by scleroderma the symptoms were scarcely improved by "etamon" (tetraethyl ammonium chloride) "priscol" (abenzylimidazoline) vitamin D and thyroid. I received news from the United States that the acid-fast sclerobacillus of Wuerthele-Caspe had been discovered and considered as the cause of this sickness. Therefore "promin" (sodium p,-p'-diaminodiphenylsulfone-N,N'-didextrose sulfonate) and streptomycin are indicated. Is there evidence of recovery with these drugs in this disease that has been until now considered a metabolic disease? Does this therapy deserve a trial?

Roberto Pietra, M.D., Torino, Italy.

ANSWER.—Doubtless reference is made to the following report—Wuerthele-Caspe, V.; Brodkin, E., and Mermod, C.: Etiology of Scleroderma, A Preliminary Clinical Report, *J. M. Soc. New Jersey* **44**:256 (July) 1947. This is a preliminary report on a probable bacterial cause of scleroderma and on its treatment with an antibacterial agent. On the supposition that the organism is a mycobacterium as in leprosy and tuberculosis it was reasoned that the organism should be found in nasal ulcers, subcutaneous tissue.

Six cases of scleroderma were reported. A mycobacterium was recovered from these patients either from nasal ulcers, sputum, subcutaneous tissue or by blood culture. The organism was described as a short, thick, acid-fast rod. Smears were prepared by the Ziehl-Neelsen method. Blood was cultured on Dubo's medium and showed after two weeks' growth a pure culture of short, thick, acid-fast rods.

The ulcerations of the fingers of 1 patient with sclerodactylia were treated with local applications of 5 per cent sodium p,p'-diaminodiphenyl sulfone-N,N'-didextrose sulfonate ("promin") in jelly made of tragacanth. It was reported that the ulcerations healed with considerable improvement in the flexibility of the hands. Other patients were treated with "promin" administered intravenously or orally.

Before judgment can be passed of the bacterial cause of scleroderma and treatment with "promin," further study and confirmation are required.

RETINAL HEMORRHAGE

To the Editor:—Is it advisable to administer rutin prophylactically to prevent recurrence of hemorrhagic retinitis? A patient, now 57, diabetic, had retinitis thirteen years ago, and another attack two years later which was so severe that the ophthalmologist feared that the sight of one eye would be permanently lost. However, he recovered to the extent that he can read newspaper type for a short while until the effort tires him. He has not used insulin for eight years and has a constant blood sugar level of 127 mg. He fears another attack of retinitis.

M.D., New York.

ANSWER.—From the description of the patient's clinical course, it would seem that the prognosis is none too good inasmuch as there have already been two attacks of retinitis. The vascular state of the retinal vessels is probably none too good and a degenerative retinopathy probably exists as well as some vascular sclerosis. Rutin exerts a beneficial effect in cases of increased capillary fragility. In this case, I know of no definite manner in which you can assure your patient that future attacks can be prevented. On the other hand, no legitimate reason would seem to exist to prevent you from using rutin prophylactically in the hope that it may prevent another attack, or if it does not prevent another attack, it may at least have the effect of diminishing the total effect of an increased capillary fragility.

PES PLANUS

To the Editor:—I have a severe grade of pes planus. For several years I have tried to correct my deformity with exercises, and have worn arch supports at various time without avail. Is manipulation of benefit?

M.D., Georgia.

ANSWER.—Flatfoot or pes valgoplanus in an adult can be corrected. Only if the foot is fixed or rigid, which means that the position cannot be changed voluntarily, would a manipulation with the patient under anesthesia be required. With a definite muscle spasm and the foot held in the everted position it may require rest with hot packs, or occasionally local or general anesthesia, to get the muscles relaxed. Then the foot can be brought into normal position.

Usually the pes valgoplanus is present with weight bearing and the valgus position of the heel can be corrected and the anterior part of the foot brought back into normal position by conservative means. This is best accomplished by having a pliable shoe with the heel raised on the inner side, and a comma-shaped bar which is higher on the lateral side than on the medial side, attached to the sole of the shoe. Thus the heel is brought into varus and the head of the first metatarsal bone is brought down plantarward. This reestablishes the longitudinal arch as well as the anterior arch. The normal position is retained by the corrective shoe, but this in itself is insufficient. Normal walking must then be practiced in the shoes. This means heel and toe walking. The normal use of the foot in the corrected position will gradually reestablish the strength of the muscles. The symptoms will thus be relieved and the appearance of the foot will improve. It must be emphasized that the use of the corrective shoe should be gradual, starting with five minute periods ten times a day and increasing the walking periods gradually until the shoes can be worn a half day and finally a full day.

HISTAMINE IN MIGRAINE

To the Editor:—I contemplate treating a patient with severe migraine with intravenous administration of histamine. She has not responded to other therapy. What is the efficacy of this method of treatment?

LaMar J. Hankamp, M.D., Delton, Mich.

ANSWER.—The results of intravenous histamine therapy, as now used for migraine, histaminic cephalgia and Ménière's disease, are in general excellent. In a large series of true migraines, carefully screened to eliminate other sources of headache or pain, authors report almost 80 per cent of either total and permanent relief up to five years, or a degree of improvement in frequency, severity and duration of attacks such that they constitute only a minor annoyance rather than disability. To the present time there is no reliable basis on which to determine whether a particular person will respond satisfactorily to intravenous histamine therapy, or will belong to the approximately 20 per cent in which this treatment fails.

Others report satisfactory results particularly after abandoning the technic of frequent single injections increasing as tolerated, in favor of prolonged exposure (three to ten hours) to intravenously administered histamine at the maximum tolerated rate of injection. Before undertaking the procedure, one should be thoroughly competent to recognize, prevent and treat the numerous and serious reactions which may frequently accompany this procedure, in particular increased gastric acidity with occasional aggravation or reactivation of peptic ulcer—or rarely gastric hemorrhage from unsuspected ulcer—severe typical headache, rapid fall of blood pressure with potential shock, urticaria, asthma or other manifestations of anaphylaxis.

BIURET REACTION

To the Editor:—We have attempted to use the biuret method in the colorimetric determination of total proteins, albumin and globulin with variable results. I would appreciate learning whether there are any other good methods applicable to a spectrophotometer. M.D., Utah.

ANSWER.—The two most common methods for the quantitative spectrophotometric determination of total proteins, albumin and globulin are the biuret reaction, which depends on color development with copper sulfate, and the Folin phenol method, which involves the use of a tungstate-molybdate reagent. Robinson and Hogden (*J. Biol. Chem.* **135**:707-731 [1940]) consider the biuret reaction to have certain advantages over the Folin phenol procedure, particularly in that the color intensities developed in the latter method are different for albumin and globulin. An excellent review and bibliography on the biuret method occurs in "Advances in Protein Chemistry," volume III, pages 149 to 150. Greenberg and Mirolubova describe in detail a modified procedure using the Folin phenol reagent in the *Journal of Laboratory and Clinical Medicine* (**21**:431 [1936]). The procedure with pertinent remarks is found in "Outline of the Amino Acids and Proteins," by Sahyun, pages 146 to 149.

TATTOO

To the Editor:—What solutions are used for "tattooing in reverse?"

Arthur J. Ring, M.D., Lynn, Mass.

ANSWER.—Physicians remove tattoos by tattooing or by plastic surgery. The most widely used method is thoroughly to tattoo 40 per cent tannic acid into the lesion with needles, after which 50 per cent silver nitrate is applied to the area until a hard adherent crust is formed. The area is bandaged and the crust is allowed to come off naturally. It usually takes two treatments, and, as a rule, little scarring results.